Usenet Newsgroup Archive: rec.radio.amateur.antenna

2006-01 - 2006-03

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Date span: 2006-01-01 through 2006-03-31

Source text: rec.radio.amateur.antenna.txt

Source item: https://archive.org/details/usenet-rec

Messages included in this PDF: 3,881

Message records with no readable body available in the source text: 1

Messages are presented chronologically by archived date.

Binary or encoded payloads are not printed as blocks of encoded text; a placeholder appears where such material was detected. The original source text is unchanged.

1. Re: 2006 ARRL Antenna Handbook

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 00:18:08 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <a85c1$43b71ff2$471d2513$24670@ALLTEL.NET>
Source record: 65812

Ed, have not seen you around in a while. good to see you in the newsgroup!

73 es Happy New Year

Fred W4JLE

<w1rfi@arrl.org> wrote in message
news:1136072567.144309.145550@z14g2000cwz.googlegroups.com...
>
> The ARRL Antenna Book goes through a major revision every few years.
> The 20th Edition is the current edition. I have every edition of the
> Antenna Book and each has a unique presentation of enough of its
> material to warrant the purchase, IMHO.
>
> ARRL does some degree of revision to the Handbook every year, with the
> 2006 being a pretty heavy revision. What I suggest hams do is to watch
> the ads and note which chapters were given major revisions. When you
> see chapters whose subject topic interests you, it is probably worth
> buying the Handbook that year.
>
> Ed
>

2. 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 00:51:02 UTC
From: "vk3sc@yahoo.com.au" <vk3sc@yahoo.com.au>
Message-ID: <1136076662.062387.276970@o13g2000cwo.googlegroups.com>
Source record: 65813

I wonder if u could help me, i have a tri-band beam erected and am considering using 450 ohm feeder due to the less amount of loss on the line (as opposed to RG58)

The radio i am using is an IC-756PROII, with inbuilt ATU, will i be able to connect the feeder direct to the beam and run it straight into the back of my 756 (using 259 connector) ??

Or will i requrie a balun at either the beam or radio end???

hope you can shed some light on this, have got a bit confused with it

thanks in advance

Stephen Catterall

VK3SC

3. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 01:15:25 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <N2Gtf.2998$M%4.1974@newsread3.news.atl.earthlink.net>
Source record: 65814

<vk3sc@yahoo.com.au> wrote in message
news:1136076662.062387.276970@o13g2000cwo.googlegroups.com...
> I wonder if u could help me, i have a tri-band beam erected and am
> considering using 450 ohm feeder due to the less amount of loss on the
> line (as opposed to RG58)
>
> The radio i am using is an IC-756PROII, with inbuilt ATU, will i be
> able to connect the feeder direct to the beam and run it straight into
> the back of my 756 (using 259 connector) ??
>
> Or will i requrie a balun at either the beam or radio end???
>
> hope you can shed some light on this, have got a bit confused with it
>
> thanks in advance
>
> Stephen Catterall
>
> VK3SC
>

Unless you are running over 200 meters of coax, just go with the rg-8 size coax of a good brand. There is not that much loss in the rg-8 coax below 30 mhz to make any differance , especially by putting in the baluns.

No you can not just connect the open line to the so239 connectors. The rig is looking for something around 50 ohms and you already have a 450 ohm line with the open line. Most beams are designed to be fed with 50 ohm line also.

4. using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 02:14:04 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <1ZmdnY0padRtpyreRVn-sQ@comcast.com>
Source record: 65815

This is the next chapter in the antenna measuring saga. Today's adventure is trying to measure SWR with an HP 8405A Vector Voltmeter.

The measuring setup is a standard signal generator feeding a tee. One branch feeds the A input of the 8405A and the other a 20 db directional configured in reverse, that is feeding the out port. The assumption is the reflected signal will be read correctly on the in port. The in port is then terminated or connected to an antenna.

An open termination reads 180 degrees and a 50 Ohm termination reads 0 degrees and 55 db down from the input. (I assume 20 of that is the coupler so I am subtracting 20 from that reading - is that a correct assumption.)

Using the method to read the SWR on an antenna produces values very close to those from several SWR meters used as controls. When the output is terminated in 25 Ohms (2 x 50 Ohm terminators on a tee) the reflected signal reads about 24.5 db. (The B channel won't calibrate to within 1/2 a db so readings are estimates) Subtracting the 20 db bias yields 4.5 db. Within the error of the instrument this is pretty close to an SWR of 2:1.

Is there an error in this logic? If the instrument is working well enough to perform this calculation then it should support more complicated measurements.

Thanks - Dan

5. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 03:15:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dPHtf.4234$UF3.925@newssvr25.news.prodigy.net>
Source record: 65816

vk3sc@yahoo.com.au wrote:
> I wonder if u could help me, i have a tri-band beam erected and am
> considering using 450 ohm feeder due to the less amount of loss on the
> line (as opposed to RG58)

Matched line loss for 450 ohm ladder-line is indeed less than the
matched line loss for coax. But using ladder-line to feed a tri-beam
will result in an SWR on the ladder-line of around 10:1 so you will
be losing power because of higher SWR. If your coax run is less than
100 ft., I would just upgrade to a better grade of coax than RG-58.

> The radio i am using is an IC-756PROII, with inbuilt ATU, will i be
> able to connect the feeder direct to the beam and run it straight into
> the back of my 756 (using 259 connector) ??
>
> Or will i requrie a balun at either the beam or radio end???

To do what you want to do will require a choke-balun at the IC-756.
In addition, what you want to do will require you to feed the beam
with a multiple of half-wavelengths of ladder-line. That means you
will be required to change the length of the ladder-line when you
change bands in order to get an impedance that your IC-756 tuner can
match. To use such a system, you have to know exactly what you are
doing. I do use such a system myself.

If you don't want to change the length of your ladder-line when you
change bands, your best solution is probably to go with a good grade
of coax like RG-8, RG-213, or LMR-400.
--
73, Cecil http://www.qsl.net/w5dxp

6. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 03:25:23 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dbier1pqtn48up9firolmlhigbq9gh0n10@4ax.com>
Source record: 65817

On Sat, 31 Dec 2005 18:14:04 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>This is the next chapter in the antenna measuring saga. Today's adventure is
>trying to measure SWR with an HP 8405A Vector Voltmeter.

As I see it, your instrument with accessories (directional coupler,
attenuator, etc) can be used to measure the complex reflection
coefficient (Gamma) at the measurement plane.

Reading the mail, it seems have already worked out how to do that, and
to calculate Z given gamma.

If you want to determine SWR, you don't need the argument of Gamma,
you just need its magnitude rho. SWR=(1+rho)/(1-rho) where
rho=|Gamma|. (You are of course throwing away part of the measurement
data, the part that is the real power of the VVM. You could measure
rho with a directional coupler, calibrated attenuator and xtal
detector or a bolometer power meter... but they won't give you the
phase data that the VVM does.)

The return loss of VSWR=2 is 9.5dB, not 4.5 as you suggest. You need
to review some of these simple relationships. You also seem not to be
properly including the directional coupler in the calibration loop,
why the tee as described, doesn't the 8405A have a tee probe?

Is using a VVM an overkill for determining SWR? Probably, especially
if the complexity results in errors.

Owen
--

7. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 03:33:35 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <mtier1hajfvt9a8dh4a741an9sh9rhqaoo@4ax.com>
Source record: 65818

On 31 Dec 2005 16:51:02 -0800, "vk3sc@yahoo.com.au"
<vk3sc@yahoo.com.au> wrote:

>I wonder if u could help me, i have a tri-band beam erected and am
>considering using 450 ohm feeder due to the less amount of loss on the
>line (as opposed to RG58)
>
>The radio i am using is an IC-756PROII, with inbuilt ATU, will i be
>able to connect the feeder direct to the beam and run it straight into
>the back of my 756 (using 259 connector) ??
>
>Or will i requrie a balun at either the beam or radio end???
>
>hope you can shed some light on this, have got a bit confused with it

It would have helped if you disclosed the feedline length, it has
bearing on selection of solutions.

On the one hand, one respondent has told you 200m of RG8 is ok (that
is about 6dB of loss at 28MHz), and another has told you that the VSWR
on 450 ohm line will make it unattractive... you can only make these
calls if the length of the feedline is known (and the 450 ohm line
need not operate at high VSWR).

Do you rotate this beam? Will you need a coax tail at the rotator, or
have you some scheme in mind for using open wire line at this point?

There is probably already a balun at the beam feedpoint... but you
will probably continue need to use coax right close to the beam (the
rotator issue).

Owen
--

8. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 03:34:37 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <1cjer19bq1ivqfusjudsf4e4oqnr1b71ar@4ax.com>
Source record: 65819

On Sun, 01 Jan 2006 03:25:23 GMT, Owen Duffy <owen@no.where> wrote:

>Reading the mail, it seems have already worked out how to do that, and
>to calculate Z given gamma.

Should read:

Reading the mail, it seems have already worked out how to do that, and
to calculate Z given Gamma (with a captial G).
--

9. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 03:57:50 UTC
From: w4sef@bellsouth.net
Message-ID: <43b75307.17995796@newsgroups.bellsouth.net>
Source record: 65820

I would never use RG 58... use a good RG 8 or RG 213 instead of the
ladder line for proper impedance to the antenna and rig.

Steve

On 31 Dec 2005 16:51:02 -0800, "vk3sc@yahoo.com.au"
<vk3sc@yahoo.com.au> wrote:

>I wonder if u could help me, i have a tri-band beam erected and am
>considering using 450 ohm feeder due to the less amount of loss on the
>line (as opposed to RG58)
>
>The radio i am using is an IC-756PROII, with inbuilt ATU, will i be
>able to connect the feeder direct to the beam and run it straight into
>the back of my 756 (using 259 connector) ??
>
>Or will i requrie a balun at either the beam or radio end???
>
>hope you can shed some light on this, have got a bit confused with it
>
>thanks in advance
>
>Stephen Catterall
>
>VK3SC
>

10. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 04:56:37 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <9iJtf.904$%W1.300@newsread2.news.atl.earthlink.net>
Source record: 65821

"Owen Duffy" <owen@no.where> wrote in message
news:mtier1hajfvt9a8dh4a741an9sh9rhqaoo@4ax.com...
> On 31 Dec 2005 16:51:02 -0800, "vk3sc@yahoo.com.au"
> <vk3sc@yahoo.com.au> wrote:
>
> >I wonder if u could help me, i have a tri-band beam erected and am
> >considering using 450 ohm feeder due to the less amount of loss on the
> >line (as opposed to RG58)
> >
> >The radio i am using is an IC-756PROII, with inbuilt ATU, will i be
> >able to connect the feeder direct to the beam and run it straight into
> >the back of my 756 (using 259 connector) ??
> >
> >Or will i requrie a balun at either the beam or radio end???
> >
> >hope you can shed some light on this, have got a bit confused with it
>
> It would have helped if you disclosed the feedline length, it has
> bearing on selection of solutions.
>
> On the one hand, one respondent has told you 200m of RG8 is ok (that
> is about 6dB of loss at 28MHz), and another has told you that the VSWR
> on 450 ohm line will make it unattractive... you can only make these
> calls if the length of the feedline is known (and the 450 ohm line
> need not operate at high VSWR).
>
>
Got to admitt I ment 200 feet instead of 200 meters. That is less than 2 db
for rg8. Even the rg8x is only about 3.5 db for 200 feet at 30 mhz. By the
time you factor in the loss due to the swr and probably a couple of baluns
and the trouble to run open wire up a tower and in the shack you do not gain
much over a good grade of rg8 with open line up to 200 feet or more.

11. Re: 450 ohm ladder line matching (HELP)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 04:56:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eiJtf.40630$7h7.25839@newssvr21.news.prodigy.com>
Source record: 65822

Owen Duffy wrote:
> ... another has told you that the VSWR
> on 450 ohm line will make it unattractive...

Not unattractive, just less attractive than if
it was a matched line case. I feed my 20m rotatable
dipole with 300 ohm ladder-line and put up with the
SWR loss in order to gain 20m/17m/15m/12m/10m
operation.
--
73, Cecil http://www.qsl.net/w5dxp

12. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 06:12:47 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <fbCdnUZdXYR_7yreRVn-vA@comcast.com>
Source record: 65823

Where are these equations? I have searched the ARRL handbook for Gamma and did not find it. This is also the first reference to rho.

I was planning on the Z equation next, yes I remember that one from earlier in the week.

Owen Duffy wrote:
> On Sun, 01 Jan 2006 03:25:23 GMT, Owen Duffy <owen@no.where> wrote:
>
>
>
>>Reading the mail, it seems have already worked out how to do that, and
>>to calculate Z given gamma.
>
>
> Should read:
>
> Reading the mail, it seems have already worked out how to do that, and
> to calculate Z given Gamma (with a captial G).
> --

13. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 06:46:55 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jmter196l9o5ssqti189el0qcdc92p4hc9@4ax.com>
Source record: 65824

On Sat, 31 Dec 2005 22:12:47 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>Where are these equations? I have searched the ARRL handbook for Gamma and did
>not find it. This is also the first reference to rho.

I am at my holiday place, and don't have reference manuals here, so I
can't give you specific references. I am confident that the main
formulas you need will be in both the ARRL Handbook and the ARRL
Antenna Handbook (though some versions of the ARRL publications
contain an incorrect formula for Gamma / rho). They will be in any
text on transmission lines.

Because I don't have the Geek font available here, I write Gamma to
mean the uppercase Greek symbol gamma (G). Textbooks should use the
symbol.

"Gamma" (meaning the uppercase Greek Gamma symbol) is the complex
reflection coefficient and Gamma=(Zl-Zo)/(Zl+Zo) where Zl and Zo are
complex quantities. rho (lowercase Greek rho) is the magnitude of
Gamma, rho=|Gamma|. VSWR=(1+rho)/(1-rho). You can rearrange these
expressions to suit your needs. For example,
Zl=Zo*(1+Gamma)/(1-Gamma).

Be careful, there are different notations and meanings in different
texts.

You need a reference!

Owen
--

14. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 07:51:31 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <8e2fr1dbcoajchpl8ehg6j4od0od8mg7f1@4ax.com>
Source record: 65825

Perhaps this lab document might help you:

http://emclab.concordia.ca/~trueman/elec453/Experiment_2_2005.pdf
--

15. Re: An Antenna for the FT-857D

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 13:49:51 UTC
From: Eskay <siebklaasNO@SPAMhotmail.com>
Message-ID: <1mt9zb9sv88uk$.1eijiyl6g2au3$.dlg@40tude.net>
Source record: 65826

On Sat, 31 Dec 2005 21:09:53 GMT, west wrote:

> Been away from Ham Radio for over 20 years and am ready to buy a Yaesu
> FT-857D (160-6 & 2; .7m, also 60m). I have a relatively small lot and was
> wondering with all those bands, what am I going to use for a good DX
> antenna(s). I have a dear friend in Australia that it would be great if I
> could hook up with him. Any thoughts? Thank you.
>
> Cordially,
> west
> AF4GC (Tampa Bay, Florida)

HI
You might consider the Hexbeam, It is a five band antenna and very
compact and light. Google for it and you will find all kinds of info.
Eskay.

16. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 15:06:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <5eStf.60511$tV6.26377@newssvr27.news.prodigy.net>
Source record: 65827

dansawyeror wrote:
> Where are these equations? I have searched the ARRL handbook for Gamma
> and did not find it. This is also the first reference to rho.

Some texts, like ITT's "Reference Data for Radio Engineers"
simply define rho to be complex as does Ramo and Whinnery.

rho = Eref/Efor = -Iref/Ifor = (Z-Z0)/(Z+Z0) =
(Y0-Y)/(Y0+Y) = |rho| /_ 2*psi

where psi is the electrical angle to the nearest voltage
maximum looking back toward the generator from the load.

Walter C. Johnson uses 'k' for the reflection coefficient.
--
73, Cecil http://www.qsl.net/w5dxp

17. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 15:46:38 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <nfrfr1dfe7osnc9k1c9591uoo6hr074thl@4ax.com>
Source record: 65828

On Sat, 31 Dec 2005 18:14:04 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>This is the next chapter in the antenna measuring saga. Today's adventure is
>trying to measure SWR with an HP 8405A Vector Voltmeter.
>
>The measuring setup is a standard signal generator feeding a tee. One branch
>feeds the A input of the 8405A and the other a 20 db directional configured in
>reverse, that is feeding the out port. The assumption is the reflected signal
>will be read correctly on the in port. The in port is then terminated or
>connected to an antenna.

It would also be nice it you had a 6 - 10 dB pad between the generator
and the directional coupler (DC); located right at the DC. You want
the source match to be set right there and the A probe to sample right
there.

>
>An open termination reads 180 degrees and a 50 Ohm termination reads 0 degrees
>and 55 db down from the input. (I assume 20 of that is the coupler so I am
>subtracting 20 from that reading - is that a correct assumption.)

No and no. Although an open isn't as bad a reference as some folks
think (in coax anyway), a better reference is a short. Then you know
that the reflection is 100% < -180 deg. (Where "<" means "angle of")
An open has a bit of fringing capacitance and a tiny bit of radiation
so it strays (sorry) from 100% < 0 degrees.

The other thing you need to do is normalize all future readings to 0
dB. Because, as Owen notes, you're throwing away phase information in
your quest for SWR only data, then start thinking in terms of return
loss. Return loss is measured (or calculated) against a 0 dB
reference. So from the beginning, when you get a reading with a short
(or open) that ratio becomes your 0 dB reference.

>
>Using the method to read the SWR on an antenna produces values very close to
>those from several SWR meters used as controls. When the output is terminated in
>25 Ohms (2 x 50 Ohm terminators on a tee) the reflected signal reads about 24.5
>db. (The B channel won't calibrate to within 1/2 a db so readings are estimates)
>Subtracting the 20 db bias yields 4.5 db. Within the error of the instrument
>this is pretty close to an SWR of 2:1.

Are you saying that it you step the input power to the "B" channel by
1 dB, it measures a 1/2 dB change, or that with the same signal
applied to A and B they only agree within 1/2 dB?

If it's the former, then stop here and fix the instrument. If it's
the latter, you don't care; you are measuring ratios.
>
>Is there an error in this logic? If the instrument is working well enough to
>perform this calculation then it should support more complicated measurements.

There are errors someplace. A 2:1 SWR is a return loss of 9.55 dB.

18. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 16:13:29 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <seufr19iluuq293fceh82sood2hdj82244@4ax.com>
Source record: 65829

On Sat, 31 Dec 2005 22:12:47 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>Where are these equations? I have searched the ARRL handbook for Gamma and did
>not find it. This is also the first reference to rho.

Rho is mentioned on page 5 of AN77-3. Unfortunately, as I have
written a long time ago in other threads, Hewlett-Packard's authors
(and divisions) could not agree among themselves on a standard
notation for complex reflection coefficient.

The same holds true for the rest of the literature. My personal (and
others') choice is to use upper case Gamma for the complex reflection
coefficient and lower case rho for the magnitude of Gamma.

If this was standard then there would be no confusion.

19. Re: Tri-Ex vs US Towers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 16:40:19 UTC
From: Ronald <towerless_qth@r2d2.com>
Message-ID: <43B805F2.1BA1A294@r2d2.com>
Source record: 65830

I agree, do it right the first time and enjoy the tower !

on the other side, take a look at this installation !

http://deepsouthnet.net/tower.html

73 ron

20. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 19:15:12 UTC
From: dplatt@radagast.org
Message-ID: <11rgai07jv1clc6@corp.supernews.com>
Source record: 65831

In article <nfrfr1dfe7osnc9k1c9591uoo6hr074thl@4ax.com>,
Wes Stewart <n7ws*@*yahoo.com> wrote:

>>The measuring setup is a standard signal generator feeding a tee. One branch
>>feeds the A input of the 8405A and the other a 20 db directional configured in
>>reverse, that is feeding the out port. The assumption is the reflected signal
>>will be read correctly on the in port. The in port is then terminated or
>>connected to an antenna.
>
>It would also be nice it you had a 6 - 10 dB pad between the generator
>and the directional coupler (DC); located right at the DC. You want
>the source match to be set right there and the A probe to sample right
>there.

The 8405A manual indicates the use of a power divider, and then a pair
of equal-value pads. One side goes to the probe T for the A
(reference) probe and thence to the termination, and the other goes to
the probe T for the B probe and thence to the device-under-test.

The manual is quite clear that the A and B probes need to be connected
to points which are isolated from one another. You really don't want
the oddities of the load connected to the B side to affect the
voltage/phase of the reference signal seen by the "A" probe - it'd
certainly wreck the measurement.

Using a power divider, and resistive pads for isolation is one way to
do this. Using a pad followed by a dual directional coupler (as in
the experiment page to which Owen posted a link - thanks!) is another.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

21. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 19:39:28 UTC
From: richardharrison@webtv.net
Message-ID: <21513-43B82FF0-476@storefull-3258.bay.webtv.net>
Source record: 65832

David wrote:
"In addition to coms between the sheds and house, there are links
between sheds (hence require omni-directional)."

The benefit of simple and directional 915 MHz antennas is so significant
that you might consider making one site a repeater and all other sites
directional, communicating through the repeater. A small antenna can
have much gain at 915 MHz. You could conveniently use full-duplex (2
frequencies) for simplicity..

Best regards, Richard Harrison, KB5WZI

22. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 20:10:08 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <AGWtf.71784$6e.47871@tornado.tampabay.rr.com>
Source record: 65833

"Bill Turner" <noway@nohow.com> wrote in message
news:52adr190uivec9du680b4hd7olru6rqbl6@4ax.com...
>
> ORIGINAL MESSAGE:
>
> On Sat, 31 Dec 2005 10:16:19 -0500, jawod <jawod@fuse.net> wrote:
>
> >Several articles referred to long grounding lines being close to 1/4
> >wavelength as being a problem. Is this eliminated with balanced
feedline?
> >
> >Thanks,
> >
> >john
>
>
> ~~~~~~
>
> No. You can not "ground" your station for RF, at least not in the
> sense of running a wire to ground. Don't bother because it isn't
> necessary anyway. You do need two kinds of ground, one for the AC
> mains for safety, and one for lightning.
>
> RF energy is expensive to generate. Don't waste it by running part of
> it into a lossy "ground". Keep it up in the air where it belongs.
> Baluns are your friend.
>
> 73, Bill W6WRT

Bill,

I like your answer but it leaves me to want a bit more. Would you mind
expanding on your 2 paragraphs? Thanks.

west
AF4GC

23. Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 20:47:43 UTC
From: billcalley <billcalley@yahoo.com>
Message-ID: <1136148463.132269.164130@g49g2000cwa.googlegroups.com>
Source record: 65834
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

I realize that dipoles are balanced antennas, but does the rig itself still need an RF ground too? (I know the radio always needs a DC ground, of course). How about if the dipole is being used as a non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER LINE--DIPOLE) -- would this affect the need for an RF ground on the rig for operation in the dipole's non-resonant bands? Or is no RF ground _at all_ required with a dipole; unlike when using random wires or verticals, and other such un-balanced antennas?

Thanks!

Bill

24. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 21:01:18 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <iiegr1d5kq8kvv33g5drhpdo84rn2til1s@4ax.com>
Source record: 65835

On Sun, 01 Jan 2006 19:15:12 -0000, dplatt@radagast.org (Dave Platt)
wrote:

>In article <nfrfr1dfe7osnc9k1c9591uoo6hr074thl@4ax.com>,
>Wes Stewart <n7ws*@*yahoo.com> wrote:
>
>>>The measuring setup is a standard signal generator feeding a tee. One branch
>>>feeds the A input of the 8405A and the other a 20 db directional configured in
>>>reverse, that is feeding the out port. The assumption is the reflected signal
>>>will be read correctly on the in port. The in port is then terminated or
>>>connected to an antenna.
>>
>>It would also be nice it you had a 6 - 10 dB pad between the generator
>>and the directional coupler (DC); located right at the DC. You want
>>the source match to be set right there and the A probe to sample right
>>there.
>
>The 8405A manual indicates the use of a power divider, and then a pair
>of equal-value pads. One side goes to the probe T for the A
>(reference) probe and thence to the termination, and the other goes to
>the probe T for the B probe and thence to the device-under-test.

Actually, my manual does not show this. Although I have the full kit
of a resistive tee, two 50 ohm "N" sampling tees and appropriate
terminations, I don't believe Dan does.

>The manual is quite clear that the A and B probes need to be connected
>to points which are isolated from one another.

I've read this someplace, but again my version of the manual (unless
I'm really missing something) doesn't say it. Nevertheless, the
directional coupler provides the isolation between probes.

>You really don't want
>the oddities of the load connected to the B side to affect the
>voltage/phase of the reference signal seen by the "A" probe - it'd
>certainly wreck the measurement.

>Using a power divider, and resistive pads for isolation is one way to
>do this.

Actually, you do want to measure (include) the effects of the load on
the source. Although you ideally want the source to be unchangable
with respect to changes in the load (good source match). That is the
point of my suggestion to pad the source at the input to the coupler.
(Just as does paragraph 2.3 of Owen's reference)

But if the load -does- pull the source you damn sure want to know it
and account for it. The desired ratio is that between the incident
signal and the reflected signal. Sampling somewhere off in isolated
space via a tee and additional padding does -not- yield the incident
signal.

>
> Using a pad followed by a dual directional coupler (as in
>the experiment page to which Owen posted a link - thanks!) is another.

My point exactly. With the dual coupler the forward coupled arm -is-
measuring the incident signal -regardless- of what effects load pull
have on the source output.

25. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 21:04:23 UTC
From: Charles Schuler <charleschuler@comcast.net>
Message-ID: <XbKdnfSLedRE3iXeRVn-sg@comcast.com>
Source record: 65836
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"billcalley" <billcalley@yahoo.com> wrote in message
news:1136148463.132269.164130@g49g2000cwa.googlegroups.com...
> I realize that dipoles are balanced antennas, but does the rig
> itself still need an RF ground too? (I know the radio always needs a DC
> ground, of course). How about if the dipole is being used as a
> non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER
> LINE--DIPOLE) -- would this affect the need for an RF ground on the rig
> for operation in the dipole's non-resonant bands? Or is no RF ground
> _at all_ required with a dipole; unlike when using random wires or
> verticals, and other such un-balanced antennas?

With ladder line it is best to use a balun between the antenna tuner and the transmission line. An RF ground on the rig is then not required (you won't have RF voltages on the rig's chassis).

The thing about an RF ground is that due to the length of the ground circuit, the rig is often not grounded anyway.

26. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 21:35:59 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <d1hgr19mite65uj1ptmf4g3aarm3f6qqst@4ax.com>
Source record: 65837

On Sun, 01 Jan 2006 14:01:18 -0700, Wes Stewart <n7ws*@*yahoo.com>
wrote:

>On Sun, 01 Jan 2006 19:15:12 -0000, dplatt@radagast.org (Dave Platt)
>wrote:
>
>>In article <nfrfr1dfe7osnc9k1c9591uoo6hr074thl@4ax.com>,
>>Wes Stewart <n7ws*@*yahoo.com> wrote:
>>
>>>>The measuring setup is a standard signal generator feeding a tee. One branch
>>>>feeds the A input of the 8405A and the other a 20 db directional configured in
>>>>reverse, that is feeding the out port. The assumption is the reflected signal
>>>>will be read correctly on the in port. The in port is then terminated or
>>>>connected to an antenna.
>>>
>>>It would also be nice it you had a 6 - 10 dB pad between the generator
>>>and the directional coupler (DC); located right at the DC. You want
>>>the source match to be set right there and the A probe to sample right
>>>there.
>>
>>The 8405A manual indicates the use of a power divider, and then a pair
>>of equal-value pads. One side goes to the probe T for the A
>>(reference) probe and thence to the termination, and the other goes to
>>the probe T for the B probe and thence to the device-under-test.
>
>Actually, my manual does not show this. Although I have the full kit
>of a resistive tee, two 50 ohm "N" sampling tees and appropriate
>terminations, I don't believe Dan does.
>>
>>The manual is quite clear that the A and B probes need to be connected
>>to points which are isolated from one another.
>
>I've read this someplace, but again my version of the manual (unless
>I'm really missing something) doesn't say it. Nevertheless, the
>directional coupler provides the isolation between probes.
>
>>You really don't want
>>the oddities of the load connected to the B side to affect the
>>voltage/phase of the reference signal seen by the "A" probe - it'd
>>certainly wreck the measurement.
>
>>Using a power divider, and resistive pads for isolation is one way to
>>do this.
>

>Actually, you do want to measure (include) the effects of the load on
>the source. Although you ideally want the source to be unchangable
>with respect to changes in the load (good source match). That is the
>point of my suggestion to pad the source at the input to the coupler.
>(Just as does paragraph 2.3 of Owen's reference)
>
>But if the load -does- pull the source you damn sure want to know it
>and account for it. The desired ratio is that between the incident
>signal and the reflected signal. Sampling somewhere off in isolated
>space via a tee and additional padding does -not- yield the incident
>signal.
>
>>
>> Using a pad followed by a dual directional coupler (as in
>>the experiment page to which Owen posted a link - thanks!) is another.
>
>My point exactly. With the dual coupler the forward coupled arm -is-
>measuring the incident signal -regardless- of what effects load pull
>have on the source output.

I've got to clarify this a bit if I can...

If you have the full set of parts per figure 11 in AN77-3 and you are using them as shown, then with equal loads on the two ends, the circuit is essentially a resistive Wheatstone bridge in balance with the null detected by the difference between probes A and B.

In this case, the "incident" signal -is- measured by the A probe and the effects to the source by a changing load are incorporated into the measurement.

In the case at hand, at least as I imagine it, there is no longer an nice tidy resistive Wheatstone bridge, but some cabling and a directional coupler in the mix. In this case, the generator is no longer the "source", the source is the signal at the input to the coupler. It is my belief (unless I change my mind later) that a sample derived from a resistive divider remote from the input to the directional coupler is not a true measure of the incident signal.

27. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 21:45:17 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jtigr1pk2upn8t3aqlpkq7a8vrsjugr83i@4ax.com>
Source record: 65838

On Sun, 01 Jan 2006 03:25:23 GMT, Owen Duffy <owen@no.where> wrote:

>On Sat, 31 Dec 2005 18:14:04 -0800, dansawyeror
><dansawyeror@comcast.net> wrote:
>

>why the tee as described, doesn't the 8405A have a tee probe?

Dan, my reason for this question is that you do not seem to have a load independent sample of the forward wave (if you are referencing measurements to the A probe).

Ideally you would use a dual directional coupler, otherwise, you need to isolate the A sample from load impedance variations and reflections using a largish attenuator for example.

If you are working the ratios out entirely from the B probe, eg B probe measurements on s/c and unknown load, then the A measurement becomes unimportant. Note that while this approach can give you enough info to measure rho and calculate SWR, it will not permit phase measurements. This approach dumbs the instrument down to a single channel RF voltmeter.

Owen
--

28. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 21:45:36 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rgjc3pu8roqe9@corp.supernews.com>
Source record: 65839
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

billcalley wrote:
> I realize that dipoles are balanced antennas, but does the rig
> itself still need an RF ground too?

If your feedline is balanced, that is it has equal and opposite currents on the two conductors, then there's no current left over to flow to or from ground and no need for an RF ground connection. All the current from one conductor goes back on the other. Feedlines can be balanced even if they're coax and/or the antenna is unsymmetrical; they can be unbalanced even if the antenna and feedline are symmetrical.

If the feedline isn't balanced, the difference current (that is, the difference between the currents on the two feedline conductors) will find its way to ground however it can. This often creates undesirable effects. But if you can't avoid it, it's better to provide a low impedance path for the ground current if possible. And that can sometimes be difficult to do.

(I know the radio always needs a DC
> ground, of course).

No, it doesn't. It needs an AC safety ground if connected to the mains, and a lightning ground if that's a possible hazard. But DC isn't important.

How about if the dipole is being used as a
> non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER
> LINE--DIPOLE) -- would this affect the need for an RF ground on the rig
> for operation in the dipole's non-resonant bands? Or is no RF ground
> _at all_ required with a dipole; unlike when using random wires or
> verticals, and other such un-balanced antennas?

The trick is to get the feedline balanced on all bands. That requires either a truly balanced tuner, or a combination of a good balun and impedances on all bands at the balun which the balun can handle.

Roy Lewallen, W7EL

29. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 22:03:35 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B851B7.7040407@comcast.net>
Source record: 65840

The VVM appears to do a great job of reading 'open circuit' at 180 degrees and
50 Ohms at 0 degrees, however it does not appear to read shorts accurately.
Shorts read at about 150 degrees instead of -180. They also degrade the incoming
signal to the point where is has significant noise on the monitor output line.
Is there a technique for doing this?

Thanks - Dan

>>This is the next chapter in the antenna measuring saga. Today's adventure is
>>trying to measure SWR with an HP 8405A Vector Voltmeter.
>>
>>The measuring setup is a standard signal generator feeding a tee. One branch
>>feeds the A input of the 8405A and the other a 20 db directional configured in
>>reverse, that is feeding the out port. The assumption is the reflected signal
>>will be read correctly on the in port. The in port is then terminated or
>>connected to an antenna.
>
>
> It would also be nice it you had a 6 - 10 dB pad between the generator
> and the directional coupler (DC); located right at the DC. You want
> the source match to be set right there and the A probe to sample right
> there.
>
>
>>An open termination reads 180 degrees and a 50 Ohm termination reads 0 degrees
>>and 55 db down from the input. (I assume 20 of that is the coupler so I am
>>subtracting 20 from that reading - is that a correct assumption.)
>
>
> No and no. Although an open isn't as bad a reference as some folks
> think (in coax anyway), a better reference is a short. Then you know
> that the reflection is 100% < -180 deg. (Where "<" means "angle of")
> An open has a bit of fringing capacitance and a tiny bit of radiation
> so it strays (sorry) from 100% < 0 degrees.
>
> The other thing you need to do is normalize all future readings to 0
> dB. Because, as Owen notes, you're throwing away phase information in
> your quest for SWR only data, then start thinking in terms of return
> loss. Return loss is measured (or calculated) against a 0 dB
> reference. So from the beginning, when you get a reading with a short
> (or open) that ratio becomes your 0 dB reference.
>
>
>>Using the method to read the SWR on an antenna produces values very close to
>>those from several SWR meters used as controls. When the output is terminated in

>>25 Ohms (2 x 50 Ohm terminators on a tee) the reflected signal reads about 24.5
>>db. (The B channel won't calibrate to within 1/2 a db so readings are estimates)
>>Subtracting the 20 db bias yields 4.5 db. Within the error of the instrument
>>this is pretty close to an SWR of 2:1.
>
>
> Are you saying that it you step the input power to the "B" channel by
> 1 dB, it measures a 1/2 dB change, or that with the same signal
> applied to A and B they only agree within 1/2 dB?
>
> If it's the former, then stop here and fix the instrument. If it's
> the latter, you don't care; you are measuring ratios.
>
>>Is there an error in this logic? If the instrument is working well enough to
>>perform this calculation then it should support more complicated measurements.
>
>
> There are errors someplace. A 2:1 SWR is a return loss of 9.55 dB.
>

30. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 22:10:09 UTC
From: dplatt@radagast.org
Message-ID: <11rgkq1ppamdce@corp.supernews.com>
Source record: 65841

In article <d1hgr19mite65uj1ptmf4g3aarm3f6qqst@4ax.com>,
Wes Stewart <n7ws*@*yahoo.com> wrote:

>>>The 8405A manual indicates the use of a power divider, and then a pair
>>>of equal-value pads. One side goes to the probe T for the A
>>>(reference) probe and thence to the termination, and the other goes to
>>>the probe T for the B probe and thence to the device-under-test.
>>
>>Actually, my manual does not show this. Although I have the full kit
>>of a resistive tee, two 50 ohm "N" sampling tees and appropriate
>>terminations, I don't believe Dan does.
>>>
>>>The manual is quite clear that the A and B probes need to be connected
>>>to points which are isolated from one another.
>>
>>I've read this someplace, but again my version of the manual (unless
>>I'm really missing something) doesn't say it.

The BAMA copy mentions it in paragraph 3-14. Later text indicates
that attaching the two probes to a single point is an appropriate way
to set phase-zero.

>> Nevertheless, the
>>directional coupler provides the isolation between probes.

I see the issue, and I think I was conflating two different sorts of
measurement regimes.

The splitter/isolator/pad arrangement I was referring to appears on
page 3-3 of the 8405A manual available at BAMA. It's what's
appropriate for doing an in-line test of a transmission line or other
network, where you want to see the effect of the network itself and
can measure (via probe B) at the network's output.

Page 3-4 shows a somewhat similar hookup, which doesn't include the
resistive pads... I presume because the device-under-test (an
amplifier) is assumed to have high isolation as part of its design.

Neither of these hookups wouldn't work for measuring an antenna, since
you can't measure at the antenna's output. Instead, using a
directional coupler provides the necessary isolation, and (as you
point out) lets you determine the incident and reflected signals
accurately.

>I've got to clarify this a bit if I can...
>
>If you have the full set of parts per figure 11 in AN77-3 and you are

>using them as shown, then with equal loads on the two ends, the
>circuit is essentially a resistive Wheatstone bridge in balance with
>the null detected by the difference between probes A and B.
>
>In this case, the "incident" signal -is- measured by the A probe and
>the effects to the source by a changing load are incorporated into the
>measurement.
>
>In the case at hand, at least as I imagine it, there is no longer an
>nice tidy resistive Wheatstone bridge, but some cabling and a
>directional coupler in the mix. In this case, the generator is no
>longer the "source", the source is the signal at the input to the
>coupler. It is my belief (unless I change my mind later) that a
>sample derived from a resistive divider remote from the input to the
>directional coupler is not a true measure of the incident signal.

Hmmm. In the general case, I believe you're correct.

I suspect that the setup shown in the 8405A manual sets up a specific special case, though. The diagrams and text seem to be defining a case in which:

- there is a physical and electrical symmetry in the T arrangement - that is, the power splitter is symmetrical, and the pair of attenuator pads between the splitter and the (A probe tap) and (device under test) are matched. The manual makes a point of this issue.

- The pads being used are matched to the system's transmission line impedance, so that any reflected signal coming back from the DUT/coupler sees a proper termination by the source (the pad and signal generator, in this case) and is not re-reflected.

In this particular situation, I believe that the incident signals reaching the DUT (the input to the coupler, in this case) and the "A" probe, would be identical... would they not? The proper termination of the reflected wave will mean that it won't re-reflect off of the generator and alter the incident wave. The "A" probe signal (off on its side of the "T") and a signal read out via the incident-wave tap on the directional coupler ought to be the same, once the coupling coefficient is taken into account... no?

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

31. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 22:32:41 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B85889.8000407@comcast.net>
Source record: 65842

I do not have the 8405a adapter kit or power splitter. I made "probe to bnc" adapters with 3/4 inch copper plumbing stock. The threads on the back of the probe are standard thread so it is easy to make an adapter and simply screw the probes in. This allows the A and B inputs to be connected to the directional coupler with bnc.

The measuring setup is a signal generator feeding a tee. One side of the tee connects to the A channel input. The other side feeds the 'output side' of the coupler. The B port is connected to the coupled signal port. The load is connected to the coupler input. This should read the reflected signal.

The signal generator is adjusted to read 0 dbm on the A port for all readings. (This is not possible for the 'shorted' readings). I do not have a pad between the generator and the tee. However, the above setup appears to support consistent readings.

Dan

Wes Stewart wrote:
> On Sun, 01 Jan 2006 19:15:12 -0000, dplatt@radagast.org (Dave Platt)
> wrote:
>
>
>>In article <nfrfr1dfe7osnc9k1c9591uoo6hr074thl@4ax.com>,
>>Wes Stewart <n7ws*@*yahoo.com> wrote:
>>
>>
>>>>The measuring setup is a standard signal generator feeding a tee. One branch
>>>>feeds the A input of the 8405A and the other a 20 db directional configured in
>>>>reverse, that is feeding the out port. The assumption is the reflected signal
>>>>will be read correctly on the in port. The in port is then terminated or
>>>>connected to an antenna.
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>>>and the directional coupler (DC); located right at the DC. You want
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>>>there.
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>>The 8405A manual indicates the use of a power divider, and then a pair
>>of equal-value pads. One side goes to the probe T for the A
>>(reference) probe and thence to the termination, and the other goes to
>>the probe T for the B probe and thence to the device-under-test.
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>
> Actually, my manual does not show this. Although I have the full kit

> of a resistive tee, two 50 ohm "N" sampling tees and appropriate
> terminations, I don't believe Dan does.
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>>The manual is quite clear that the A and B probes need to be connected
>>to points which are isolated from one another.
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> I'm really missing something) doesn't say it. Nevertheless, the
> directional coupler provides the isolation between probes.
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>>You really don't want
>>the oddities of the load connected to the B side to affect the
>>voltage/phase of the reference signal seen by the "A" probe - it'd
>>certainly wreck the measurement.
>
>
>>Using a power divider, and resistive pads for isolation is one way to
>>do this.
>
>
> Actually, you do want to measure (include) the effects of the load on
> the source. Although you ideally want the source to be unchangable
> with respect to changes in the load (good source match). That is the
> point of my suggestion to pad the source at the input to the coupler.
> (Just as does paragraph 2.3 of Owen's reference)
>
> But if the load -does- pull the source you damn sure want to know it
> and account for it. The desired ratio is that between the incident
> signal and the reflected signal. Sampling somewhere off in isolated
> space via a tee and additional padding does -not- yield the incident
> signal.
>
>
>> Using a pad followed by a dual directional coupler (as in
>>the experiment page to which Owen posted a link - thanks!) is another.
>
>
> My point exactly. With the dual coupler the forward coupled arm -is-
> measuring the incident signal -regardless- of what effects load pull
> have on the source output.
>

32. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 22:44:30 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <gtlgr15u5hipup2i413f12nrd7jca4b5gs@4ax.com>
Source record: 65843

ORIGINAL MESSAGE:

On Sun, 01 Jan 2006 20:10:08 GMT, "west" <westley@tampabay.rr.com>
wrote:

>
>"Bill Turner" <noway@nohow.com> wrote in message
>news:52adr190uivec9du680b4hd7olru6rqbl6@4ax.com...
>>
>> ORIGINAL MESSAGE:
>>
>> On Sat, 31 Dec 2005 10:16:19 -0500, jawod <jawod@fuse.net> wrote:
>>
>> >Several articles referred to long grounding lines being close to 1/4
>> >wavelength as being a problem. Is this eliminated with balanced
>feedline?
>> >
>> >Thanks,
>> >
>> >john
>>
>>
>> ~~~~~~
>>
>> No. You can not "ground" your station for RF, at least not in the
>> sense of running a wire to ground. Don't bother because it isn't
>> necessary anyway. You do need two kinds of ground, one for the AC
>> mains for safety, and one for lightning.
>>
>> RF energy is expensive to generate. Don't waste it by running part of
>> it into a lossy "ground". Keep it up in the air where it belongs.
>> Baluns are your friend.
>>
>> 73, Bill W6WRT
>
>Bill,
>
>I like your answer but it leaves me to want a bit more. Would you mind
>expanding on your 2 paragraphs? Thanks.
>
>west
>AF4GC
>

~~~~~~
~~~~~~

OK.

1. Running a wire from your rig to ground will not do what you think it will. Any wire is a significant portion of a wavelength at HF and may be many wavelengths at VHF and UHF. On ten meters, for example, eight feet is almost exactly 1/4 wavelegth. If you recall your basic transmission line theory, whatever condition is present at one end of a 1/4 wave line has just the opposite at the other end. If you really do have a good ground connection at the grounded end of the wire, the other is an open circuit. Not very effective for grounding, is it?

The effect becomes less as you lower the frequency, but never completely disappears. It is possible to tune out this effect with a suitable coil and capacitor combination, but it really isn't needed anyway. MFJ makes a "ground tuner" or whatever they call it, and I suppose it does work, but think about this: If getting a good RF ground actually improves your signal, you have a SERIOUS problem in your antenna. More on this in the next paragraph.

2. RF does no good flowing through the earth. None at all. Dirt is a poor conductor at any ham frequency and you should do your best to keep your RF out of it. I suspect the idea that "ground" helps your signal came from the very early days of radio when frequencies were very low and wavelenghts were very long... miles long in fact. At those frequencies there are two factors which might make use of ground desireable: The earth is much more conductive at very low frequencies, and miles of wire for an antenna is not easily done. Under those circumstances, working a long wire against ground might actually be a good idea. None of that applies to ham frequencies, of course. At ham frequencies, RF works best when it's up in the air, all of it. Not in the ground, not in your shack, up in the air.

Keep that in mind and you can't go wrong.

73, Bill W6WRT

33. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 22:49:33 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <qtmgr1928brppqenddghgcqbe4k8jnepga@4ax.com>
Source record: 65844
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

ORIGINAL MESSAGE:

On 1 Jan 2006 12:47:43 -0800, "billcalley" <billcalley@yahoo.com>
wrote:

>Or is no RF ground
>_at all_ required with a dipole; unlike when using random wires or
>verticals, and other such un-balanced antennas?

~~~~~~

Any antenna which requires a connection to ground should be shown the
trash can immediately. Ground (earth) is a lousy conductor and does
nothing to help your signal. RF belongs up in the air, not down in the
dirt.

If you find that connecting a ground wire actually improves your
signal, you have a SERIOUS problem in your antenna.

73, Bill W6WRT
~~~~~~

34. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-01 23:52:12 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <MWZtf.165252$V7.78176@news-server.bigpond.net.au>
Source record: 65845

Richard,
If I was to use directional antennas. What would your recommendation be ?

What about a vertically polarized Yagi ? other ?

Thanks

Regards

David

Richard Harrison wrote:
> David wrote:
> "In addition to coms between the sheds and house, there are links
> between sheds (hence require omni-directional)."
>
> The benefit of simple and directional 915 MHz antennas is so significant
> that you might consider making one site a repeater and all other sites
> directional, communicating through the repeater. A small antenna can
> have much gain at 915 MHz. You could conveniently use full-duplex (2
> frequencies) for simplicity..
>
> Best regards, Richard Harrison, KB5WZI
>

--

Kind Regards

David Huisman
General Manager

ORBIT COMMUNICATIONS Pty Ltd - Wireless Solutions that Work
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35. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 00:12:21 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <YpWcnf_xDah68iXeSa8jmw@karoo.co.uk>
Source record: 65846
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Charles Schuler wrote:

>
> "billcalley" <billcalley@yahoo.com> wrote in message
> news:1136148463.132269.164130@g49g2000cwa.googlegroups.com...
>> I realize that dipoles are balanced antennas, but does the rig
>> itself still need an RF ground too? (I know the radio always needs a DC
>> ground, of course). How about if the dipole is being used as a
>> non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER
>> LINE--DIPOLE) -- would this affect the need for an RF ground on the rig
>> for operation in the dipole's non-resonant bands? Or is no RF ground
>> _at all_ required with a dipole; unlike when using random wires or
>> verticals, and other such un-balanced antennas?
>
> With ladder line it is best to use a balun between the antenna tuner and
> the
> transmission line. An RF ground on the rig is then not required (you
> won't have RF voltages on the rig's chassis).
>
> The thing about an RF ground is that due to the length of the ground
> circuit, the rig is often not grounded anyway.

Most modern shacks have to long distance between the rig and ground. It's not equal to an ungrounded rig but you might experience hf in your shack.

This is best solved by a short ground cable to a proper ground rod.

The next best thing is to buy or build an artificial ground. It's very simple and can be made to cover all ham bands easily and will always give you a perfect length of the earth cable... By cheating of course - but it works!

Cheers

M0DFI

36. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 00:15:49 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <YpWcnf7xDagq7SXeSa8jmw@karoo.co.uk>
Source record: 65847
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

billcalley wrote:

> I realize that dipoles are balanced antennas, but does the rig
> itself still need an RF ground too? (I know the radio always needs a DC
> ground, of course). How about if the dipole is being used as a
> non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER
> LINE--DIPOLE) -- would this affect the need for an RF ground on the rig
> for operation in the dipole's non-resonant bands? Or is no RF ground
> _at all_ required with a dipole; unlike when using random wires or
> verticals, and other such un-balanced antennas?
>
> Thanks!
>
> Bill

Get a virtual earth! They are easy to build for all ham bands!

It's basically a phasing unit for the earth connection which can null the
voltage on the earth at the RF Rig!

Cheers

M0DFI

37. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 00:17:00 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <YpWcnfnxDahj7SXeSa8jmw@karoo.co.uk>
Source record: 65848

jawod wrote:

> After reading the archive regarding 2nd floor grounding, a couple of
> questions.
>
> Outside of sufficiently thick gauge wire and proper depth to grounding
> rod. Are there any ELECTRICAL (nonRF) issues left to resolve for a 2nd
> floor ground?
>
> Several articles referred to long grounding lines being close to 1/4
> wavelength as being a problem. Is this eliminated with balanced feedline?
>
> Thanks,
>
> john

Forget about balun's and other widgetry!

Get a virtual earth! They are easy to build for all ham bands!

It's basically a phasing unit for the earth connection which can null the
voltage on the earth at the RF Rig!

If you don't want to build one, MFJ sells one!

Cheers

M0DFI

38. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 00:51:37 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <vladnfqrOM6B5CXenZ2dnUVZ_tWdnZ2d@comcast.com>
Source record: 65849

Owen,

Yes, you are right. The single coupler doesn't isolate the channels. Putting a 10 dbm attenuator between the tee and the coupler changes the 50 Ohm reading. I think a dual directional coupler is required. I will have to put this on hold until that problem is solved.

Thanks - Dan

Owen Duffy wrote:
> On Sun, 01 Jan 2006 03:25:23 GMT, Owen Duffy <owen@no.where> wrote:
>
>
>>On Sat, 31 Dec 2005 18:14:04 -0800, dansawyeror
>><dansawyeror@comcast.net> wrote:
>>
>
>
>>why the tee as described, doesn't the 8405A have a tee probe?
>
>
> Dan, my reason for this question is that you do not seem to have a
> load independent sample of the forward wave (if you are referencing
> measurements to the A probe).
>
> Ideally you would use a dual directional coupler, otherwise, you need
> to isolate the A sample from load impedance variations and reflections
> using a largish attenuator for example.
>
> If you are working the ratios out entirely from the B probe, eg B
> probe measurements on s/c and unknown load, then the A measurement
> becomes unimportant. Note that while this approach can give you enough
> info to measure rho and calculate SWR, it will not permit phase
> measurements. This approach dumbs the instrument down to a single
> channel RF voltmeter.
>
> Owen
> --

39. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 01:22:13 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <9f%tf.17696$zJ3.11265@trnddc04>
Source record: 65850

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:vIadnfqrOM6B5CXenZ2dnUVZ_tWdnZ2d@comcast.com...
> Owen,
>
> Yes, you are right. The single coupler doesn't isolate the channels.
> Putting a 10 dbm attenuator between the tee and the coupler changes the 50
> Ohm reading. I think a dual directional coupler is required. I will have
> to put this on hold until that problem is solved.
>
> Thanks - Dan

Dan

Are you open to trying to assemble something to measure the reflection
coefficient rather than to put the project on hold?
The HP 41952A Transmission/Reflection Test Set uses only one directional
coupler. It uses a power splitter at the input with a pad to level the
outputs from the "Fwd" and "Rev" ports. I can scan some info from the HP
41952 and E-mail them to you if you have interest in building something.
I would think it would be fairly easy to build devices for HF if you
already have a decent directional coupler.

Jerry

40. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 01:59:37 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <632hr11s5ogf0n25s5if48242t5n87j44g@4ax.com>
Source record: 65851

ORIGINAL MESSAGE:

On Mon, 02 Jan 2006 00:17:00 +0000, Dan Andersson
<dan@andersson.co.uk> wrote:

>Forget about balun's and other widgetry!
>
>Get a virtual earth! They are easy to build for all ham bands!
>
>It's basically a phasing unit for the earth connection which can null the
>voltage on the earth at the RF Rig!
>
>If you don't want to build one, MFJ sells one!
>
>Cheers
>
>M0DFI

~~~~~~

They're great if you like your antenna two feet above ground.

The way you "null out the voltage" is by making that wire resonant and
resonant wires love to radiate. Nobody would intentionally install an
antenna below knee level, but that's what you're doing.

Busted any pileups lately? :-)

73, Bill W6WRT
~~~~~~

41. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 02:01:41 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <d92hr1hjr1deje2o1b95nlbtue5lce4a41@4ax.com>
Source record: 65852

ORIGINAL MESSAGE:

On Mon, 02 Jan 2006 00:12:21 +0000, Dan Andersson
<dan@andersson.co.uk> wrote:

>This is best solved by a short ground cable to a proper ground rod.

~~~~~~

No it isn't.

It's best solved by keeping the RF out of the shack in the first
place. Even if you could "ground" your RF, why would you want to run
your RF through dirt? Is dirt a good antenna?

73, Bill W6WRT
~~~~~~

42. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 02:45:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rh4v9gdjsm65c@corp.supernews.com>
Source record: 65853

Bill Turner wrote:
>
> They're great if you like your antenna two feet above ground.
>
> The way you "null out the voltage" is by making that wire resonant and
> resonant wires love to radiate. Nobody would intentionally install an
> antenna below knee level, but that's what you're doing.
> . . .

I don't agree entirely with some of the recent short postings. And making a wire resonant doesn't make it radiate any better or worse than a non-resonant one. But if you have an unbalanced feedline (and by this I don't mean a symmetrical feedline like ladder line, but one of any construction with imbalanced currents) and consequential current from your rig to ground, that conductive path to ground will radiate just like an antenna -- any current flowing on a conductor causes radiation, regardless of whether we consider it to be an "antenna", a "ground wire", or a "transmission line". And as Bill points out, the location of a ground wire isn't usually what you'd choose for an antenna. Other consequential effects are that an unbalanced feedline has a net (common mode) current and so it radiates, too. The feedline and ground wire are also part of the antenna when receiving, so they'll be good at receiving noise that's generated in the house or radiating from mains wiring. All in all, it's not an ideal situation, although quite a number of people manage to get away with it.

Roy Lewallen, W7EL

43. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 02:47:59 UTC
From: richardharrison@webtv.net
Message-ID: <26048-43B8945F-1005@storefull-3251.bay.webtv.net>
Source record: 65854

Dave wrote:
"What would your recommendation be?"

I would use a vertical collinear omni antenna for the repeater and vertically polarized Yagis for each of the "sheds". To avoid stimulation of argument, I`ll say no more. You mainly need a line-of-sight path at 915 MHz between all remote sites and the repeater.

Best regards, Richard Harrison, KB5WZI

44. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 03:39:20 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B8A068.3000004@comcast.net>
Source record: 65855

Jerry,

Thanks, the antenna handbook has a design for a bi-directional coupler that looks like it will work. At this point I think the next step is to separate the input to the A port from the reflected signal. Putting a pad in the circuit to increase isolation affected the reflected reading. I am also sorting through those readings.

Dan

Jerry Martes wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:vIadnfqrOM6B5CXenZ2dnUVZ_tWdnZ2d@comcast.com...
>
>>Owen,
>>
>>Yes, you are right. The single coupler doesn't isolate the channels.
>>Putting a 10 dbm attenuator between the tee and the coupler changes the 50
>>Ohm reading. I think a dual directional coupler is required. I will have
>>to put this on hold until that problem is solved.
>>
>>Thanks - Dan
>
>
> Dan
>
> Are you open to trying to assemble something to measure the reflection
> coefficient rather than to put the project on hold?
> The HP 41952A Transmission/Reflection Test Set uses only one directional
> coupler. It uses a power splitter at the input with a pad to level the
> outputs from the "Fwd" and "Rev" ports. I can scan some info from the HP
> 41952 and E-mail them to you if you have interest in building something.
> I would think it would be fairly easy to build devices for HF if you
> already have a decent directional coupler.
>
> Jerry
>
>

45. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 03:40:09 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <io6hr1dkk484apu8gcirq1kuao0rqveq3o@4ax.com>
Source record: 65856

On Sun, 01 Jan 2006 22:10:09 -0000, dplatt@radagast.org (Dave Platt)
wrote:

>
>In article <d1hgr19mite65uj1ptmf4g3aarm3f6qqst@4ax.com>,
>Wes Stewart <n7ws*@*yahoo.com> wrote:
>
>>>>The 8405A manual indicates the use of a power divider, and then a pair
>>>>of equal-value pads. One side goes to the probe T for the A
>>>>(reference) probe and thence to the termination, and the other goes to
>>>>the probe T for the B probe and thence to the device-under-test.
>>>
>>>Actually, my manual does not show this. Although I have the full kit
>>>of a resistive tee, two 50 ohm "N" sampling tees and appropriate
>>>terminations, I don't believe Dan does.
>>>>
>>>>The manual is quite clear that the A and B probes need to be connected
>>>>to points which are isolated from one another.
>>>
>>>I've read this someplace, but again my version of the manual (unless
>>>I'm really missing something) doesn't say it.
>
>The BAMA copy mentions it in paragraph 3-14. Later text indicates
>that attaching the two probes to a single point is an appropriate way
>to set phase-zero.

Bingo. Didn't seem like an "Electrical feature" to me :-)
>
>>> Nevertheless, the
>>>directional coupler provides the isolation between probes.
>
>I see the issue, and I think I was conflating two different sorts of
>measurement regimes.
>
>The splitter/isolator/pad arrangement I was referring to appears on
>page 3-3 of the 8405A manual available at BAMA. It's what's
>appropriate for doing an in-line test of a transmission line or other
>network, where you want to see the effect of the network itself and
>can measure (via probe B) at the network's output.
>
>Page 3-4 shows a somewhat similar hookup, which doesn't include the
>resistive pads... I presume because the device-under-test (an
>amplifier) is assumed to have high isolation as part of its design.

No, that's very similar to figure 11 in AN77-3 that I mentioned below. Without inserting the device under test per Fig 3-3, but removing the right hand 50 ohm load and connecting the device there, reflection measurements can be performed. That's a technique described in AN77-3. The configuration is that of a Wheatstone bridge as mentioned earlier.

But I still submit that when you separate the bridge, insert a DC and some cabling, you lose the symmetry and the signal measured by the A probe is not necessarily the same as the signal incident at the input to the DC. Close maybe, but not something I would rely on.

Remember, when doing the calibration there is a 100% reflection. This can have a huge perturbing effect on the incident signal at the coupler input if the source is not well matched. That's why I originally suggested a pad right at the coupler input, especially if there is some cabling between the generator (or power splitting tee) and the DC.

>
>Neither of these hookups wouldn't work for measuring an antenna, since
>you can't measure at the antenna's output.

Not so, see above.

>Instead, using a
>directional coupler provides the necessary isolation, and (as you
>point out) lets you determine the incident and reflected signals
>accurately.
>
>>I've got to clarify this a bit if I can...
>>
>>If you have the full set of parts per figure 11 in AN77-3 and you are
>>using them as shown, then with equal loads on the two ends, the
>>circuit is essentially a resistive Wheatstone bridge in balance with
>>the null detected by the difference between probes A and B.
>>
>>In this case, the "incident" signal -is- measured by the A probe and
>>the effects to the source by a changing load are incorporated into the
>>measurement.
>>
>>In the case at hand, at least as I imagine it, there is no longer an
>>nice tidy resistive Wheatstone bridge, but some cabling and a
>>directional coupler in the mix. In this case, the generator is no
>>longer the "source", the source is the signal at the input to the
>>coupler. It is my belief (unless I change my mind later) that a
>>sample derived from a resistive divider remote from the input to the
>>directional coupler is not a true measure of the incident signal.
>
>Hmmm. In the general case, I believe you're correct.
>
>I suspect that the setup shown in the 8405A manual sets up a specific
>special case, though. The diagrams and text seem to be defining a

>case in which:
>
>- there is a physical and electrical symmetry in the T arrangement -
> that is, the power splitter is symmetrical, and the pair of
> attenuator pads between the splitter and the (A probe tap) and
> (device under test) are matched. The manual makes a point of this
> issue.
>
>- The pads being used are matched to the system's transmission line
> impedance, so that any reflected signal coming back from the
> DUT/coupler sees a proper termination by the source (the pad and
> signal generator, in this case) and is not re-reflected.
>
>In this particular situation, I believe that the incident signals
>reaching the DUT (the input to the coupler, in this case) and the "A"
>probe, would be identical... would they not? The proper termination
>of the reflected wave will mean that it won't re-reflect off of the
>generator and alter the incident wave. The "A" probe signal (off on
>its side of the "T") and a signal read out via the incident-wave tap
>on the directional coupler ought to be the same, once the coupling
>coefficient is taken into account... no?

No. The B probe, in the single directional coupler arrangement, is
not measuring -incident-, but reflected signal.

In any event, Dan has stated that he doesn't have all of this stuff
and is stuck using the DC only. My suggestion holds, put a pad at the
DC input, measure the incident at the DC input and of course, the
reflected at the coupled port.

46. Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 03:42:53 UTC
From: jawod <jawod@fuse.net>
Message-ID: <f23fd$43b8a13e$42a1bfc2$2968@FUSE.NET>
Source record: 65857

What would you recommend for a wire antenna if there was enough room for an 80 dipole? Assume use for 80M , 40M and 20M,

Thanks

47. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 04:01:18 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <iA1uf.1319$%W1.1101@newsread2.news.atl.earthlink.net>
Source record: 65858

"jawod" <jawod@fuse.net> wrote in message
news:f23fd$43b8a13e$42a1bfc2$2968@FUSE.NET...
> What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,
>

Use either an 80 meter dipole fed by open wire or one of the off center fed
dipoles, often called a Windom.

48. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 04:11:52 UTC
From: dplatt@radagast.org
Message-ID: <11rha08kqa1cb85@corp.supernews.com>
Source record: 65859

In article <io6hr1dkk484apu8gcirq1kuao0rqveq3o@4ax.com>,
Wes Stewart <n7ws*@*yahoo.com> wrote:

>Bingo. Didn't seem like an "Electrical feature" to me :-)

Yeah. I'm not sure just why there would be substantial interaction if the two points are connected to the same test point, since the rated impedance is pretty high even without 10:1 isolators.

>But I still submit that when you separate the bridge, insert a DC and
>some cabling, you lose the symmetry and the signal measured by the A
>probe is not necessarily the same as the signal incident at the input
>to the DC. Close maybe, but not something I would rely on.

The signal on the other side of the T-and-attenuator setup wouldn't be the same as the signal at the input to the DC, certainly, since the signal at the input of the DC would be affected by the reflected signal. I don't disagree with you there.

What I suggest, though, is that the signal on the "A" probe (at the other side of the T from the DC), and a signal as seen at the output of the DC's "forward" coupler line, ought to be very closely correlated. They'd differ by the coupler's coupling factor, of course, and there's be a bit of phase shift from the coupler (dependent on the coupler line length and the frequency). However, the loading at the coupler output from the load (or the calibration short) ought not to affect the signal appearing at the 'forward' tap on the coupler.

>Remember, when doing the calibration there is a 100% reflection. This
>can have a huge perturbing effect on the incident signal at the
>coupler input if the source is not well matched.

Agreed, and I don't suggest that measuring the incident at the coupler input is a good idea.

> That's why I
>originally suggested a pad right at the coupler input, especially if
>there is some cabling between the generator (or power splitting tee)
>and the DC.

Agreed.

>No. The B probe, in the single directional coupler arrangement, is
>not measuring -incident-, but reflected signal.

True. I was assuming a double directional coupler, and asserting that the "forward" output on the coupler will produce a signal equivalent

(except for scaling and perhaps a tad of phase shift) to a signal
taken from the far side of the splitter-and-pads "T".

>In any event, Dan has stated that he doesn't have all of this stuff
>and is stuck using the DC only. My suggestion holds, put a pad at the
>DC input, measure the incident at the DC input and of course, the
>reflected at the coupled port.

Yes, that should work quite well, and I think it'd give results pretty
much equivalent to [1] a dual directional coupler or [2] the
splitter-and-two-pads isolation arrangement.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

49. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 04:32:35 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B8ACE3.2050305@comcast.net>
Source record: 65860

Wes,

I only have copies of a few pages from the app note showing a bi-directional coupler. Is your reference that the note shows a bridge?

Thanks - Dan

Wes Stewart wrote:
> On Sun, 01 Jan 2006 22:10:09 -0000, dplatt@radagast.org (Dave Platt)
> wrote:
>
>
>>In article <d1hgr19mite65uj1ptmf4g3aarm3f6qqst@4ax.com>,
>>Wes Stewart <n7ws*@*yahoo.com> wrote:
>>
>>
>>>>>The 8405A manual indicates the use of a power divider, and then a pair
>>>>>of equal-value pads. One side goes to the probe T for the A
>>>>>(reference) probe and thence to the termination, and the other goes to
>>>>>the probe T for the B probe and thence to the device-under-test.
>>>>
>>>>Actually, my manual does not show this. Although I have the full kit
>>>>of a resistive tee, two 50 ohm "N" sampling tees and appropriate
>>>>terminations, I don't believe Dan does.
>>>>
>>>>>The manual is quite clear that the A and B probes need to be connected
>>>>>to points which are isolated from one another.
>>>>
>>>>I've read this someplace, but again my version of the manual (unless
>>>>I'm really missing something) doesn't say it.
>>
>>The BAMA copy mentions it in paragraph 3-14. Later text indicates
>>that attaching the two probes to a single point is an appropriate way
>>to set phase-zero.
>
>
> Bingo. Didn't seem like an "Electrical feature" to me :-)
>
>>>> Nevertheless, the
>>>>directional coupler provides the isolation between probes.
>>
>>I see the issue, and I think I was conflating two different sorts of
>>measurement regimes.
>>
>>The splitter/isolator/pad arrangement I was referring to appears on

>>page 3-3 of the 8405A manual available at BAMA. It's what's
>>appropriate for doing an in-line test of a transmission line or other
>>network, where you want to see the effect of the network itself and
>>can measure (via probe B) at the network's output.
>>
>>Page 3-4 shows a somewhat similar hookup, which doesn't include the
>>resistive pads... I presume because the device-under-test (an
>>amplifier) is assumed to have high isolation as part of its design.
>
>
> No, that's very similar to figure 11 in AN77-3 that I mentioned below.
> Without inserting the device under test per Fig 3-3, but removing the
> right hand 50 ohm load and connecting the device there, reflection
> measurements can be performed. That's a technique described in
> AN77-3. The configuration is that of a Wheatstone bridge as mentioned
> earlier.
>
> But I still submit that when you separate the bridge, insert a DC and
> some cabling, you lose the symmetry and the signal measured by the A
> probe is not necessarily the same as the signal incident at the input
> to the DC. Close maybe, but not something I would rely on.
>
> Remember, when doing the calibration there is a 100% reflection. This
> can have a huge perturbing effect on the incident signal at the
> coupler input if the source is not well matched. That's why I
> originally suggested a pad right at the coupler input, especially if
> there is some cabling between the generator (or power splitting tee)
> and the DC.
>
>
>>Neither of these hookups wouldn't work for measuring an antenna, since
>>you can't measure at the antenna's output.
>
>
> Not so, see above.
>
>
>>Instead, using a
>>directional coupler provides the necessary isolation, and (as you
>>point out) lets you determine the incident and reflected signals
>>accurately.
>>
>>
>>>I've got to clarify this a bit if I can...
>>>
>>>If you have the full set of parts per figure 11 in AN77-3 and you are
>>>using them as shown, then with equal loads on the two ends, the
>>>circuit is essentially a resistive Wheatstone bridge in balance with
>>>the null detected by the difference between probes A and B.
>>>

>>>In this case, the "incident" signal -is- measured by the A probe and
>>>the effects to the source by a changing load are incorporated into the
>>>measurement.
>>>
>>>In the case at hand, at least as I imagine it, there is no longer an
>>>nice tidy resistive Wheatstone bridge, but some cabling and a
>>>directional coupler in the mix. In this case, the generator is no
>>>longer the "source", the source is the signal at the input to the
>>>coupler. It is my belief (unless I change my mind later) that a
>>>sample derived from a resistive divider remote from the input to the
>>>directional coupler is not a true measure of the incident signal.
>>
>>Hmmm. In the general case, I believe you're correct.
>>
>>I suspect that the setup shown in the 8405A manual sets up a specific
>>special case, though. The diagrams and text seem to be defining a
>>case in which:
>>
>>- there is a physical and electrical symmetry in the T arrangement -
>> that is, the power splitter is symmetrical, and the pair of
>> attenuator pads between the splitter and the (A probe tap) and
>> (device under test) are matched. The manual makes a point of this
>> issue.
>>
>>- The pads being used are matched to the system's transmission line
>> impedance, so that any reflected signal coming back from the
>> DUT/coupler sees a proper termination by the source (the pad and
>> signal generator, in this case) and is not re-reflected.
>>
>>In this particular situation, I believe that the incident signals
>>reaching the DUT (the input to the coupler, in this case) and the "A"
>>probe, would be identical... would they not? The proper termination
>>of the reflected wave will mean that it won't re-reflect off of the
>>generator and alter the incident wave. The "A" probe signal (off on
>>its side of the "T") and a signal read out via the incident-wave tap
>>on the directional coupler ought to be the same, once the coupling
>>coefficient is taken into account... no?
>
>
> No. The B probe, in the single directional coupler arrangement, is
> not measuring -incident-, but reflected signal.
>
> In any event, Dan has stated that he doesn't have all of this stuff
> and is stuck using the DC only. My suggestion holds, put a pad at the
> DC input, measure the incident at the DC input and of course, the
> reflected at the coupled port.
>

50. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 05:02:07 UTC
From: BKR <TAKEOUTTHISPARTrchvid7@lycos.comREMOVE>
Message-ID: <43b8b3c6$1@nntp.zianet.com>
Source record: 65861

jawod wrote:
> What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,
>
> Thanks

I would use a fan dipole because of the harmonic relationship between
the frequencies you wish to operate on. Others might use a
trap dipole but traps always have some loss involved and may fail due to
moisture.

KD5RPO

51. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 06:10:43 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <rsghr1ppqhdq7gpp6cuah506cukt6u85tl@4ax.com>
Source record: 65862

ORIGINAL MESSAGE:

On Sun, 01 Jan 2006 18:45:57 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>
>I don't agree entirely with some of the recent short postings. And
>making a wire resonant doesn't make it radiate any better or worse than
>a non-resonant one.

~~~~~~

You are correct of course. I should have said a resonant antenna (or
ground wire) is easier to couple energy into, and in that sense, it
radiates better.

73, Bill W6WRT
~~~~~~

52. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 06:17:38 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <s2hhr1p4duf6rlck4aq2lhv4nbhv6icsml@4ax.com>
Source record: 65863

ORIGINAL MESSAGE:

On Sun, 01 Jan 2006 22:42:53 -0500, jawod <jawod@fuse.net> wrote:

>What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,
>
>Thanks
~~~~~~

I use the W9INN trap dipole and I love it. The "traps" are not the
conventional coil/capacitor kind. Rather, they are a self-resonant
inductor with no separate capacitor, and they are rated at full legal
power as a result.

I run the antenna at 1500 watts on RTTY, probably the toughest working
conditions possible. It's been up five years through more than 40,000
contest QSOs and not a minute's problem.

W9INN is now an SK and I don't know if they are still in production,
but they are simple enough to homebrew if you have a grid dip meter.
The ARRL antenna book has more info on building this type of antenna.

73, Bill W6WRT
~~~~~~

53. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 06:45:48 UTC
From: nm5k@wt.net
Message-ID: <1136184348.032899.311130@o13g2000cwo.googlegroups.com>
Source record: 65864

>Forget about balun's and other widgetry!

And replace it with snake oil? Why?

>Get a virtual earth! They are easy to build for all ham bands!

He's probably fairly young , has his health, etc. The last
thing he needs is a "virtual earth" on the 2nd floor.

>It's basically a phasing unit for the earth connection which can null the
>voltage on the earth at the RF Rig!

It's basically a bandaid device to cure problems from using
poorly designed antenna systems. .

>If you don't want to build one, MFJ sells one!

I don't doubt that. They sell about everything else...

Seriously, if someone is on a 2nd floor, or even a ground
floor, there is no need for rf grounding in the shack at all.
All he needs to do is run complete antennas and there
is *no* need for any rf grounding. Sure, he needs safety
grounding for some gear, but that is taken care of by a
grounded electrical cord. RF grounding should always
be under an antenna that requires it. Not at a shack,
unless the antenna is fed from the shack. And that is
a bad way to live in general. All he needs to do is run
any complete antenna, such as a coax fed dipole, or
ladder line fed dipole, or a vertical that has it's own rf
ground under it. Adding a shack ground to any of these
scenarios is a waste of time. It also usually causes
more problems, than it hopes to cure...
If he's feeding any of those antennas with coax, which
I recommend for ease of use in any location, a balun
is his best friend, not widgetry.
I'm on the ground floor, and I use no RF ground
in the shack. Have no need for one. Grounding has
enough "wives tales" , etc, attached to it, to add
more snake oil, or bandaid solutions.
Lightning grounding is a whole nother story, but it also
belongs outside, and not in the shack so doesn't really
apply to his case of being on a 2nd floor and worrying
about a rf ground.
MK

54. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 07:15:57 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <osjhr19qdmakv7ctage70pl65gudr93ah3@4ax.com>
Source record: 65865

On Sun, 01 Jan 2006 16:51:37 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>Owen,
>
>Yes, you are right. The single coupler doesn't isolate the channels. Putting a
>10 dbm attenuator between the tee and the coupler changes the 50 Ohm reading. I
>think a dual directional coupler is required. I will have to put this on hold
>until that problem is solved.
>

Dan, it seems to me that you should be able to make measurements with
a single directional coupler (DC)

You could connect your signal generator to the directional coupler via
a 40dB attenuator, and put the chan A probe T on the sig gen end of
the attenuator. This sample should be fairly independent of the
reflection from the unknown load (to the extent of the 40dB
attenuator), and so approximately proportional to the incident wave
alone.

The sample from the DC "reflected" port (properly terminated) is
fairly independent of the incident wave (depending on the F/B ratio of
the coupler) and so is approximately proportional to the reflected
wave alone.

Calibration of the B channel magnitude with a s/c and o/c taken as
rho=1 provides the basis for measurement of Gamma. The angle of Gamma
should be calibrated to 180 and o deg respectively.

BTW, the angle of Gamma for a 50 ohm termination is unimportant if rho
is very small. The angle of Gamma is real important for s/c and o/c
and ought be almost exactly 180 deg difference (if not, you have a
instrument problem).

Following this procedure, if the magnitude of the B channel on the
unknown load measures for example 9.5dB below the B chan magnitude on
a s/c, then the return loss is 9.5dB and the VSWR is 2:1. rho (the
magnitude of Gamma) is 0.333 and you could measure the phase offset
from the o/c angle to determine the angle of Gamma.

Why won't this work?

Owen
--

55. Use of MJF-269 Analyzer help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 08:45:39 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <TK5uf.166714$V7.16683@news-server.bigpond.net.au>
Source record: 65866

Hi,

I am wanting to check the match efficiency or return loss
of a C-Tap matching network that matches 50 Ohms in to 4500 Ohm load
with 2.5pF in parallel. Match at single Freqency = 45 MHz.

Using a 134nH inductor with Q of approx. 85
My calculations result in Cap to ground = 864pF, Cap to inductor = 102pF

I tried the match on the front end of my IF circuit and it appears to
tune smoothly and peak ok at 45MHz.

I then wanted to measure the return loss to see how good the match is.
Using the MJF-269, I get a lousey reading of 0.9dB. (almost everything
reflected).

Either my calculations are way off base, or I am not using the MJF-269
correctly. I also get lousey SWR (16.5), match efficiency below 5%.

I purchased the analyzer ages ago and have only used it to measure Vp of
coax till now.

Any help appreciated.

Thanks

56. Re: Use of MJF-269 Analyzer help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 12:25:45 UTC
From: Joe McElvenney <ximac@btinternet.com>
Message-ID: <l75ir1pg3dgqfmls45hu2nbg7g7gejpqsv@4ax.com>
Source record: 65867

Hi,

>I am wanting to check the match efficiency or return loss
>of a C-Tap matching network that matches 50 Ohms in to 4500 Ohm load
>with 2.5pF in parallel. Match at single Freqency = 45 MHz.
>
>Using a 134nH inductor with Q of approx. 85
>My calculations result in Cap to ground = 864pF, Cap to inductor = 102pF
>
>I tried the match on the front end of my IF circuit and it appears to
>tune smoothly and peak ok at 45MHz.
>
>I then wanted to measure the return loss to see how good the match is.
>Using the MJF-269, I get a lousey reading of 0.9dB. (almost everything
>reflected).
>
>Either my calculations are way off base, or I am not using the MJF-269
>correctly. I also get lousey SWR (16.5), match efficiency below 5%.

I checked your numbers and they seem correct except that you
appear to have ignored the shunting effect of the tuned circuit's
resonant impedance. For an inductor Q of 85 I work this out at
around 3K (so then you have 3K || 4.5K). Further, was the Q
specified at 45MHz? If not it can only be a guide as to the
relative merits of the inductor since it is very frequency
dependent.

My advice is to use the 469 to measure what you have and then
work out what the inductor is really doing from there. If you have
a couple of suitable variable capacitors, put them in place of the
fixed ones and trim for the correct resonance/match, measure them
and then re-do the numbers.

Cheers - Joe (G3LLV)

57. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 14:27:09 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns973F41A268ABdoldridgsprintca@64.59.135.159>
Source record: 65868

jawod <jawod@fuse.net> wrote in news:f23fd$43b8a13e$42a1bfc2$2968@FUSE.NET:

> What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,

Go for height first, then for length. Just build the biggest, highest damn dipole you can and feed it in the center with open wire line, 450 ohm line or 300 ohm TV lead, whatever you can get. Tune it at the rig with a balanced tuner. If need be fiddle with the feedline length until you can get it to work on all the bands you wish to use it on.

I've never had this approach fail me. Of course if you want to work a lot of DX on 80M, this is probably NOT the way to go (unless you can get it up 100 feet or more--at 300 feet it will sing no matter what you do, but you need real trees for that kind of height).

--
Dave Oldridge+
ICQ 1800667

58. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 14:29:46 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns973F4214ADEEBdoldridgsprintca@64.59.135.159>
Source record: 65869
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"billcalley" <billcalley@yahoo.com> wrote in news:1136148463.132269.164130
@g49g2000cwa.googlegroups.com:

> I realize that dipoles are balanced antennas, but does the rig
> itself still need an RF ground too? (I know the radio always needs a DC
> ground, of course). How about if the dipole is being used as a
> non-loaded "all band" antenna (IE: RIG--TRANSMATCH--LADDER
> LINE--DIPOLE) -- would this affect the need for an RF ground on the rig
> for operation in the dipole's non-resonant bands? Or is no RF ground
> _at all_ required with a dipole; unlike when using random wires or
> verticals, and other such un-balanced antennas?

If the antenna is TRULY balanced and the feedline dressed well away from it
at right angles you should have no common-mode currents on the feedline.
That's the ideal case and in that ideal case you need no RF ground at the
radio. The ideal case, however, rarely ever exists in practice.

And end-fed wires can be a whole different ball game. I had to use a 16
foot counterpoise once to "ground" a rig in a 2nd story location when I
end-fed a very long wire with it.

--
Dave Oldridge+
ICQ 1800667

59. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 14:33:18 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns973F42AD4851doldridgsprintca@64.59.135.159>
Source record: 65870

Chris W <1qazse4@cox.net> wrote in news:IT3tf.45644$ih5.19066@dukeread11:

> I want to put a short 2 meter yagi and a long 70cm yagi on the same
> vertical mast. The 70cm will be a horizontally polarized, center
> mounted 17' boom and the 2 meter will be a vertically polarized, end
> mounted 6 foot boom. How far apart do they need to be? I will only be
> transmitting with one at a time but one could be receiving and the other
> transmitting, the 70cm will be for ATV receive only for now.

A good rule of thumb is to separate them by at least a half-wave at the
lowest frequency. In this case that means about a meter (39") apart.

--
Dave Oldridge+
ICQ 1800667

60. Re: Ideas for Inside 144/440 Mhz antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 14:38:51 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns973F439E5D48doldridgsprintca@64.59.135.159>
Source record: 65871

Gary KW4Z <kw4z@charter.net> wrote in
news:BFD97182.A84E%kw4z@charter.net:

> I am not looking to punch any holes in the walls or ceiling to get a
> coax from an outdoor 144/440 Mhz antenna. I'm setting up a mobile rig
> powered off an Astron Power Supply in order to allow my wife to
> communicate on some of the local repeaters so she can talk to and
> follow me into work.
>
> The antenna can be simple as something that has a magnetic mount that
> sets on top of the power supply or something that might present some
> measure of gain. If any of you have eny experience with either
> building antennas or have one you purchased that you really like I
> would love to know what it is and consider it to fit my needs.

I run my T90A handheld into a Larsen dual-band mag-mount on top of my stereo. It works well for me, but I wouldn't recommend running anything more powerful using the stereo cabinet for a ground. As it is, I'm getting faint thumps when I key up. But a refrigerator or other appliance with a large size or even a set of 19" radials on the floor would work pretty well as long as you had enough metal to put the mag-mount on.

--
Dave Oldridge+
ICQ 1800667

61. Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 14:56:49 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpbevh$sd4$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65872

Why use a balanced tuner when a less expensive, easier to operate,
unbalanced tuner, in conjunction with a simple choke-balun, will do
just as well?

Insert the 2-wire choke-balun between the unbalanced tuner and the
balanced transmission line.

Reg.

62. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 15:22:42 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <6zbuf.1589$bd.604@tornado.tampabay.rr.com>
Source record: 65873

"Dan Andersson" <dan@andersson.co.uk> wrote in message
news:YpWcnfnxDahj7SXeSa8jmw@karoo.co.uk...
> jawod wrote:
>
> > After reading the archive regarding 2nd floor grounding, a couple of
> > questions.
> >
> > Outside of sufficiently thick gauge wire and proper depth to grounding
> > rod. Are there any ELECTRICAL (nonRF) issues left to resolve for a 2nd
> > floor ground?
> >
> > Several articles referred to long grounding lines being close to 1/4
> > wavelength as being a problem. Is this eliminated with balanced
feedline?
> >
> > Thanks,
> >
> > john
>
>
> Forget about balun's and other widgetry!
>
> Get a virtual earth! They are easy to build for all ham bands!
>
> It's basically a phasing unit for the earth connection which can null the
> voltage on the earth at the RF Rig!
>
> If you don't want to build one, MFJ sells one!
>
> Cheers
>
> M0DFI

Ok Dan, How about a follow up and give us a link or a schematic to build
one?

west
>
>
>
>

63. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 15:26:49 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <ZCbuf.66038$8d.12382@tornado.tampabay.rr.com>
Source record: 65874

"Bill Turner" <noway@nohow.com> wrote in message
news:gtlgr15u5hipup2i413f12nrd7jca4b5gs@4ax.com...
>
> ORIGINAL MESSAGE:
>
> On Sun, 01 Jan 2006 20:10:08 GMT, "west" <westley@tampabay.rr.com>
> wrote:
>
> >
> >"Bill Turner" <noway@nohow.com> wrote in message
> >news:52adr190uivec9du680b4hd7olru6rqbl6@4ax.com...
> >>
> >> ORIGINAL MESSAGE:
> >>
> >> On Sat, 31 Dec 2005 10:16:19 -0500, jawod <jawod@fuse.net> wrote:
> >>
> >> >Several articles referred to long grounding lines being close to 1/4
> >> >wavelength as being a problem. Is this eliminated with balanced
> >feedline?
> >> >
> >> >Thanks,
> >> >
> >> >john
> >>
> >>
> >> ~~~~~~
> >>
> >> No. You can not "ground" your station for RF, at least not in the
> >> sense of running a wire to ground. Don't bother because it isn't
> >> necessary anyway. You do need two kinds of ground, one for the AC
> >> mains for safety, and one for lightning.
> >>
> >> RF energy is expensive to generate. Don't waste it by running part of
> >> it into a lossy "ground". Keep it up in the air where it belongs.
> >> Baluns are your friend.
> >>
> >> 73, Bill W6WRT
> >
> >Bill,
> >
> >I like your answer but it leaves me to want a bit more. Would you mind
> >expanding on your 2 paragraphs? Thanks.
> >
> >west

> >AF4GC
> >
>
>
> ~~~~~~
>
> OK.
>
> 1. Running a wire from your rig to ground will not do what you think
> it will. Any wire is a significant portion of a wavelength at HF and
> may be many wavelengths at VHF and UHF. On ten meters, for example,
> eight feet is almost exactly 1/4 wavelegth. If you recall your basic
> transmission line theory, whatever condition is present at one end of
> a 1/4 wave line has just the opposite at the other end. If you really
> do have a good ground connection at the grounded end of the wire, the
> other is an open circuit. Not very effective for grounding, is it?
>
> The effect becomes less as you lower the frequency, but never
> completely disappears. It is possible to tune out this effect with a
> suitable coil and capacitor combination, but it really isn't needed
> anyway. MFJ makes a "ground tuner" or whatever they call it, and I
> suppose it does work, but think about this: If getting a good RF
> ground actually improves your signal, you have a SERIOUS problem in
> your antenna. More on this in the next paragraph.
>
> 2. RF does no good flowing through the earth. None at all. Dirt is a
> poor conductor at any ham frequency and you should do your best to
> keep your RF out of it. I suspect the idea that "ground" helps your
> signal came from the very early days of radio when frequencies were
> very low and wavelenghts were very long... miles long in fact. At
> those frequencies there are two factors which might make use of ground
> desireable: The earth is much more conductive at very low frequencies,
> and miles of wire for an antenna is not easily done. Under those
> circumstances, working a long wire against ground might actually be a
> good idea. None of that applies to ham frequencies, of course. At ham
> frequencies, RF works best when it's up in the air, all of it. Not in
> the ground, not in your shack, up in the air.
>
> Keep that in mind and you can't go wrong.
>
> 73, Bill W6WRT

That makes a lot of sense, Bill. It takes talent to take a rather technical
concept and put it into an easy to understand explanation. This post is
going in my Ham archive. Thanks again.

Cordially,
west
AF4GC

64. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 15:28:27 UTC
From: Registered User <n4jvp@ix.netcom.com>
Message-ID: <f4hir1pb3a3sce3u53lubjbga46qf7mj8i@4ax.com>
Source record: 65875

On Sun, 01 Jan 2006 22:42:53 -0500, jawod <jawod@fuse.net> wrote:

>What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,
>
How wide is the area that can fit an 80M dipole? You should consider a
large horizontal loop aka Loop Skywire. I also use my loop on 6 and 2
meters with HB balanced tuners.

73 de n4jvp
Fritz

65. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 16:11:35 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrndrik5n.2p1i.bit-bucket@shell.config.com>
Source record: 65727

```
On Mon, 02 Jan 2006 14:33:18 GMT, Dave Oldridge wrote:
> Chris W <1qazse4@cox.net> wrote in news:IT3tf.45644$ih5.19066@dukeread11:
>
>> I want to put a short 2 meter yagi and a long 70cm yagi on the same
>> vertical mast. The 70cm will be a horizontally polarized, center
>> mounted 17' boom and the 2 meter will be a vertically polarized, end
>> mounted 6 foot boom. How far apart do they need to be? I will only be
>> transmitting with one at a time but one could be receiving and the other
>> transmitting, the 70cm will be for ATV receive only for now.
>
> A good rule of thumb is to separate them by at least a half-wave at the
> lowest frequency. In this case that means about a meter (39") apart.

Not when they are orthogonally polarized. They can be 0.000 wavelengths
apart. I.e., in the OP's case, the 2M elements can be _mounted_ on the
70cm's boom.

I have a 6-el, close-spaced 2m vertical mounted on the forward boom of
my CC A3S. (Not that I give a crap much about 2M vert. propagation...)

HNY es 73
Jonesy
--
Marvin L Jones | jonz | W3DHJ | linux
Pueblo, Colorado | @ | Jonesy | OS/2 __
38.24N 104.55W | config.com | DM78rf | SK
```

66. Re: FA: 1-Day-Left: Book: SPREAD SPECTRUM SYSTEMS: An Advanced Electronics/Math Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 16:12:11 UTC
From: "John E. Golden" <johnisgolden@NOSPAMsbcglobal.net>
Message-ID: <Xns973F70960CB8johnisgoldenNOSPAMsb@207.115.17.102>
Source record: 65726
Cross-posted to: alt.ham-radio.marketplace,rec.radio.amateur.antenna,rec.radio.amateur.equipment

```
Auctions should be listed in [alt.marketplace.online.ebay]...NOT here!
```

67. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 16:41:18 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <MOKdnXMrl8I7yiTeRVn-og@web-ster.com>
Source record: 65728

Reg Edwards wrote:

> Why use a balanced tuner when a less expensive, easier to operate,
> unbalanced tuner, in conjunction with a simple choke-balun, will do
> just as well?
>
> Insert the 2-wire choke-balun between the unbalanced tuner and the
> balanced transmission line.
> ----
> Reg.
>
>
Because a balun particularly lossy at high SWR -- with a balanced tuner
followed by a balun you present the balun with the correct impedance, so
it's at its best.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

68. Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 17:09:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpbmnj$j0c$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65729

Transmitters, like any other 50/60 Hz AC power operated equipment, should be grounded for safety reasons.

This is done automatically via the AC power cable regardless of what floor level the transmitter is located.

If a balanced feedline is used to the antenna then no other grounding is needed.

If the antenna is an endfed wire then, for good RF radiating efficiency, there should be a low impedance connection between the TUNER and ground. The transmitter can still be left to its own devices.

If the transmitter and tuner are in the same box then the low impedance ground connection and the AC power ground are in parallel with each other. This results in an even lower impedance RF ground connection.

On whatever floor the transmitter + tuner is located, to obtain a low impedance ground, connect everything in sight together via the shortest reasonably possible wires, including hot and cold metal water pipes, the domestic plumbing system, central heating system, not forgetting the incoming water and gas mains.

The more the merrier! But only 2 or 3 distributed wires can be very effective.

Running a copper strip down an outside wall to a set of shallow buried radial wires in your back yard will be useful provided the length of the copper strip is NOT 1/4-wavelength at your favourite operating frequency. A single ground rod is wasted time, money and labour.

But, in general, if you live several floors up in a block of flats, a centre-fed dipole of random length, fed via a 450-ohm ladder-line, plus a tuner plus ckoke-balun, will be the more convenient and RF power-efficient option.

Any objections from the experts and Guru's?

Reg, G4FGQ.

69. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 17:29:42 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpbnu6$28r$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65730

```
"Tim Wescott" <tim@seemywebsite.com> wrote in message
news:MOKdnXMrI8I7yiTeRVn-og@web-ster.com...
> Reg Edwards wrote:
>
> > Why use a balanced tuner when a less expensive, easier to operate,
> > unbalanced tuner, in conjunction with a simple choke-balun, will
do
> > just as well?
> >
> > Insert the 2-wire choke-balun between the unbalanced tuner and the
> > balanced transmission line.
> > ----
> > Reg.
> >
> >
> Because a balun particularly lossy at high SWR -- with a balanced
tuner
> followed by a balun you present the balun with the correct
impedance, so
> it's at its best.
>
> --
>
> Tim Wescott
> Wescott Design Services
> http://www.wescottdesign.com

======================================
Tim!

I don't know what design services you offer but you are WRONG.

You must have been reading the wrong comical magazines.

A choke balun is amongst the most power-efficient devices.

It consists only of a pair of wires wound around a ferrite ring. It is
just a very short transmission line of the same length as the wire and
has the same very low loss.

It has a phase shift of the same length of line. Which is immaterial
insofar as the tuner is concerned. It merely changes the tuner L and
C settings.
----
Reg.
```

70. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 17:52:55 UTC
From: johan aeq <pe1aeq@amsat.og>
Message-ID: <7679a$43b96aae$52ad139c$8967@news.versatel.nl>
Source record: 65733

So a simple "pi filter" withe a bulun will do the same?
I always thought that the wide impedancerange of open wire made a
currentbalun or voltagebalun unusable.
I was just gathering parts to build my own balanced tuner....
Greetings Johan PE1AEQ

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> schreef in bericht
news:dpbevh$sd4$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com...
> Why use a balanced tuner when a less expensive, easier to operate,
> unbalanced tuner, in conjunction with a simple choke-balun, will do
> just as well?
>
> Insert the 2-wire choke-balun between the unbalanced tuner and the
> balanced transmission line.
> ----
> Reg.
>
>

71. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 17:58:31 UTC
From: Ed <Huckleberry_REMOVE_@bigvalley.net>
Message-ID: <Xns973F658726C8Aspectrumhogstarbandn@198.186.192.196>
Source record: 65731

>
> I don't know what design services you offer but you are WRONG.
>
> You must have been reading the wrong comical magazines.
>
> A choke balun is amongst the most power-efficient devices.
>

I don't know where you get your balun information, but you really need to do more homework, apparently. BALUNs can become quite lossy, depending on the impedence characteristics of the antenna you are trying to match at a particular frequency.

There are hundreds of sites where you can find this information....

http://www.cebik.com/a10/ant48.html is just one, for example.

Do some homework.

Ed K7AAT

72. Re: measurement error or bad coax??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 18:02:12 UTC
From: fmmck@aol.com
Message-ID: <fmmck-0201061302130001@aca11ded.ipt.aol.com>
Source record: 65732

In article <11r1p7hf402smbd@corp.supernews.com>, Roy Lewallen
<w7el@eznec.com> wrote:

> Physically measure the line and calculate the velocity factor. For line
> constructed like you describe, the velocity factor should be around 84%.
> A significantly lower factor probably means it has water in it.

Roy-

Is this correct? As described, the "dielectric" is mostly air with some
plastic used as a spacer. I would have expected something over 90%.

Back to the question of how to get the water out. If there is a large
quantity, you might be able to pour it out. Beyond that, is there a
common technique used to dry-out cable? (I suppose a shop-vac could be
connected to one end and run for a while, on a day with low humidity.)

Fred

73. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 18:16:58 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <efednQj0a_OP8yTeRVn-rg@web-ster.com>
Source record: 65734

```
Reg Edwards wrote:

> "Tim Wescott" <tim@seemywebsite.com> wrote in message
> news:MOKdnXMrI8I7yiTeRVn-og@web-ster.com...
>
>>Reg Edwards wrote:
>>
>>
>>>Why use a balanced tuner when a less expensive, easier to operate,
>>>unbalanced tuner, in conjunction with a simple choke-balun, will
>
> do
>
>>>just as well?
>>>
>>>Insert the 2-wire choke-balun between the unbalanced tuner and the
>>>balanced transmission line.
>>>----
>>>Reg.
>>>
>>>
>>
>>Because a balun particularly lossy at high SWR -- with a balanced
>
> tuner
>
>>followed by a balun you present the balun with the correct
>
> impedance, so
>
>>it's at its best.
>>
>>--
>>
>>Tim Wescott
>>Wescott Design Services
>>http://www.wescottdesign.com
>
>
> ========================================
> Tim!
>
> I don't know what design services you offer but you are WRONG.
>
```

> You must have been reading the wrong comical magazines.
>
> A choke balun is amongst the most power-efficient devices.
>
> It consists only of a pair of wires wound around a ferrite ring. It is
> just a very short transmission line of the same length as the wire and
> has the same very low loss.
>
> It has a phase shift of the same length of line. Which is immaterial
> insofar as the tuner is concerned. It merely changes the tuner L and
> C settings.
> ----
> Reg.
>
Sorry. I thought you were asking for help. My mistake.

Odd that you should answer the question when you already know the
answer, though.

To answer you unasked question: No, I do not have any test results, so
you are correct that I am just repeating the absorbed wisdom of others.
I'll be sure to qualify any similar answers I give in the future.
Until I get an HF system up again I won't be doing any measurements, so
don't hold your breath.

To ask you the same question: would you please post _your_ test results?

Pontificating from first principals is what you do if you are engaged in
preliminary design or the unpaid answering of questions.

Sticking to your guns in such cases is tilting over to philosophy,
religion, incompetence or internet trolling.

But you are sure enough of yourself to use capital letters when telling
me I was mistaken, so you cannot possibly be incompetent or a spinner of
trolls.

So I am confident that you are working from real, measured data, not
just derived results based on calculations or reasoning from first
principals. At most you are once removed from some reliable individual
or group who has done the measurements. It is very ungenerous of you
not to share a properly detailed report on your experiments, or a
reference to the report of the folks who did do the work -- a link to a
page will do, or even a reference to a periodical or book should the
information not be available on the web.

I'm ready to change my thinking just as soon as I see something
credible, and quite interested in the results because I don't see the
point in building a balanced tuner if my existing unbalanced one will do.

Thanks.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

74. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 18:20:30 UTC
From: Dan Richardson <>
Message-ID: <hgrir1924mhsi394hdn0tuarcd1tfrae8k@4ax.com>
Source record: 65735

On Mon, 2 Jan 2006 14:56:49 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Why use a balanced tuner when a less expensive, easier to operate,
>unbalanced tuner, in conjunction with a simple choke-balun, will do
>just as well?
>
>Insert the 2-wire choke-balun between the unbalanced tuner and the
>balanced transmission line.
>----
>Reg.
>

My link coupled tuner (Johnson Matchbox) cost me less than 60 USD, I
can tuner faster than a T-type tuner, doesn't need nor use a balun.
(Read one less component and its associated loss). So why would I want
to replace it with something that works almost as good?

Danny,
K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

75. Re: measurement error or bad coax??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 18:59:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpbt7e$f23$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65736

To dry out a cable which is partially air-spaced, get a cylinder of dry air or nitrogen and allow the gas to seep through it under a pressure of two or three times atmospheric. It may take several days or more for a length of 100 metres. Measure capacitance at intervals for stability.

It speeds things up if the cable can be warmed in an oven at about 60 degrees C. You don't want to melt the polyethylene.

The foregoing is based on a vague memory of an episode about 50 years back.
==========

76. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 19:08:18 UTC
From: billcalley <billcalley@yahoo.com>
Message-ID: <1136228898.641643.175420@g43g2000cwa.googlegroups.com>
Source record: 65737
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Thanks Guys -- I really appreciate the clarifications on grounding! It sometimes gets a bit confusing for me.

Best Regards,

Bill

77. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 19:17:53 UTC
From: nm5k@wt.net
Message-ID: <1136229473.837565.47960@g44g2000cwa.googlegroups.com>
Source record: 65738

>Any objections?

If there is no need for an RF ground, I think trying to
conjur one up is silly and just adds more problems.
IE: "virtual grounding"...Thats sillyness... :/

IE: ..
>On whatever floor the transmitter + tuner is located, to obtain a low
impedance ground, connect everything in sight together via the
shortest reasonably possible wires, including hot and cold metal water
pipes, the domestic plumbing system, central heating system, not
>forgetting the incoming water and gas mains.

Sounds like a good way to connect to a bunch of noise to me...
After all, ground is a noise source.
If the antenna is not fed directly from the shack, IE: end fed wire
from a shack tuner, I don't try to "rf" ground the shack. Being I
never feed directly from the shack, I never try to ground it.
I could be on the ground floor, or the 22nd, and I would not notice
any difference in operation. Also when mobile...Sure , I make sure
the ground under the antenna is very good. It's the rf ground. But..
I rarely bother grounding my rig itself. There is no real need.
Besides, it is grounded, when you consider the (-) power connection.
I know I'm a weirdo, but I think there are few cases where a ground
is required in radio operation. Overall, ground is either a bandaid,
or a
noise source, or a good place to lose useful rf due to excess
ground losses. The latter due to poor rf grounds under an antenna.
I think the farther one can stay away from grounds the better, overall.

I've never had much use for ground, except under vertical antennas, or
to safety ground high voltage gear like tube radios and amps.
MK

78. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 19:41:10 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <ab0jr1df2v240p8u9gs76cn8eksdtofsn0@4ax.com>
Source record: 65739

ORIGINAL MESSAGE:

On Mon, 2 Jan 2006 17:09:08 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>If the antenna is an endfed wire then, for good RF radiating
>efficiency, there should be a low impedance connection between the
>TUNER and ground.

~~~~~~

End fed wires should only be used for transmitting when people are
bleeding and the phone is out.

73, Bill W6WRT
~~~~~~

79. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 19:44:19 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <uf0jr1ld40uqhm28i9qbduive0gml2njv4@4ax.com>
Source record: 65740

ORIGINAL MESSAGE:

Previously posted:

>>On whatever floor the transmitter + tuner is located, to obtain a low
>impedance ground, connect everything in sight together via the
>shortest reasonably possible wires, including hot and cold metal water
>pipes, the domestic plumbing system, central heating system, not
>>forgetting the incoming water and gas mains.

~~~~~~

Yep, those things radiate reeeeeely good, don'tcha know.

Busted any pileups lately?

73, Bill W6WRT
~~~~~~

80. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 20:16:13 UTC
From: nm5k@wt.net
Message-ID: <1136232973.695541.234220@z14g2000cwz.googlegroups.com>
Source record: 65741

What would you recommend for a wire antenna if there was enough room
for
an 80 dipole? Assume use for 80M , 40M and 20M,
.....

Myself, I prefer separate dipoles for 80,40,20 fed in parallel with a
single
coax feed. I spread the antennas far apart to minimize coupling.
Why? Pretty much standard dipole performance on each band.
No tuner needed, and thus no tuner losses. Instant band switching.
About as efficient as anything you can run for the bands it's
designed for. Of course, you would need six tie off points, but
those can be trees, fences, whatever.. In the winter I usually
convert my 20m legs to 160m. In that case, it's a 160m "Z"
dipole, and the normal 80 and 40 dipoles fed in parallel. But, so
far this year, I've been lazy and it's still in the summer mode with
80-40-20. The 160 legs have an insulator at the "20m" point, and
I bypass those for 160 with a jumper. I can also set it up to run
on 80m as a turnstile as the 160 legs also have insulators at
the "80m" points. Well...There you have it... MPG will vary... :/
MK

81. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 20:21:55 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpc213gqd1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65742

"johan aeq" wrote
> So a simple "pi filter" withe a bulun will do the same?
> I always thought that the wide impedancerange of open wire made a
> currentbalun or voltagebalun unusable.
> I was just gathering parts to build my own balanced tuner....
> Greetings Johan PE1AEQ
>
==========

All kinds of peculiar things can happen with voltage baluns and current baluns which have a definite impedance ratio.

But my comments apply to a CHOKE balun, the most simple form of balun. It is a pair of wires wound together on a ferrite ring. It is just a very short 2-wire transmission line. For longitudinal currents it is an RF choke, the 2 wires being effectively connected in parallel.

The impedances between which it can work are indeterminate. There is no impedance ratio.

When connected between a balanced line and an unbalanced tuner, the tuner can be an ordinary simple L, Pi or T network.

If you happen to have a balanced tuner, lying around doing nothing, then by all means use it without a balun. But if you don't have a balanced tuner, as is very likely, there's no need to make one. Just use a common or garden unbalanced tuner, which nearly everybody has already got, with a CHOKE balun.

The hardest part of making a choke balun is obtaining the ferrite ring. 50mm outside diameter, 30mm inside diameter, permeability 200-400, about 16 turns of twin, flexible, stranded, speaker cable, will be OK for the HF bands. Or similar.

All the very best for 2006.

Reg, G4FGQ.

82. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 21:06:03 UTC
From: mcalhoun@ksu.edu
Message-ID: <dpc4jr$duo@unix1.cc.ksu.edu>
Source record: 65743

>....[snip]....
>The hardest part of making a choke balun is obtaining the ferrite ring....

Use a TV-set flyback transformer core; see:
"another balun design", by Fred Brown, W6HPH, in Ham Radio magazine
of May, 1982, pp. 54-57

"Three Baluns for a Buck" by Donald E. Lively, W6SJQ, from a magazine
which didn't print either its name or the date on the pages I saved!
but it basically says the same thing as the HR article.

A hint on p. 37 of the August, 1987, QST describes "The Baby-Bottle Balun",
an air-core balun based on DeMaw's article "Simple Coreless Baluns" (QST,
Oct. 1980, p. 47; which I apparently didn't appreciate enough to keep).
--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

83. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 21:34:54 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <7sSdnWELDbgfASTenZ2dnUVZ_tGdnZ2d@comcast.com>
Source record: 65744

Owen,

That idea seems to work. I set it up and then looked and the 'interference', the change in phase based on changing the pad. Zero pad showed several degrees phase shift from -40 dbm, 10 dbm showed small shift, and 20, 30, and 40 were all about equal. I decided on 20 dbm as a practical base.

Thanks - Dan

Owen Duffy wrote:
> On Sun, 01 Jan 2006 16:51:37 -0800, dansawyeror
> <dansawyeror@comcast.net> wrote:
>
>
>>Owen,
>>
>>Yes, you are right. The single coupler doesn't isolate the channels. Putting a
>>10 dbm attenuator between the tee and the coupler changes the 50 Ohm reading. I
>>think a dual directional coupler is required. I will have to put this on hold
>>until that problem is solved.
>>
>
>
> Dan, it seems to me that you should be able to make measurements with
> a single directional coupler (DC)
>
> You could connect your signal generator to the directional coupler via
> a 40dB attenuator, and put the chan A probe T on the sig gen end of
> the attenuator. This sample should be fairly independent of the
> reflection from the unknown load (to the extent of the 40dB
> attenuator), and so approximately proportional to the incident wave
> alone.
>
> The sample from the DC "reflected" port (properly terminated) is
> fairly independent of the incident wave (depending on the F/B ratio of
> the coupler) and so is approximately proportional to the reflected
> wave alone.
>
> Calibration of the B channel magnitude with a s/c and o/c taken as
> rho=1 provides the basis for measurement of Gamma. The angle of Gamma
> should be calibrated to 180 and o deg respectively.
>
> BTW, the angle of Gamma for a 50 ohm termination is unimportant if rho
> is very small. The angle of Gamma is real important for s/c and o/c
> and ought be almost exactly 180 deg difference (if not, you have a

> instrument problem).
>
> Following this procedure, if the magnitude of the B channel on the
> unknown load measures for example 9.5dB below the B chan magnitude on
> a s/c, then the return loss is 9.5dB and the VSWR is 2:1. rho (the
> magnitude of Gamma) is 0.333 and you could measure the phase offset
> from the o/c angle to determine the angle of Gamma.
>
> Why won't this work?
>
> Owen
> --

84. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 21:36:45 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <7sSdnWALDbhwASTenZ2dnUVZ_tGdnZ2d@comcast.com>
Source record: 65745

Now that the setup is reading consistently I will 'test' a loaded 2m monopole
over a 1 m**2 ground plane.

Dan

Owen Duffy wrote:
> Perhaps this lab document might help you:
>
> http://emclab.concordia.ca/~trueman/elec453/Experiment_2_2005.pdf
> --

85. Re: Practical "ideal" antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 21:45:16 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43b99eec$0$20169$8fcfb975@news.wanadoo.fr>
Source record: 65746

Hello

If you want to operate on several bands .... I recommand you the center feeded dipole.
I use en 2 x 20 m in inverted V configuration. It works fine.

Antenna:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=4&album=7&pos=3

Antenna tuner:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=46&album=7&pos=0

The home made 300 ohms feeder:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=57&album=7&pos=2

Good luck and happy new year.

Jean-Marc
F4DRH
www.barbaxoops.com

"jawod" <jawod@fuse.net> a crit dans le message de news:
f23fd$43b8a13e$42a1bfc2$2968@FUSE.NET...
> What would you recommend for a wire antenna if there was enough room for
> an 80 dipole? Assume use for 80M , 40M and 20M,
>
> Thanks

86. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 21:56:37 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jm7jr1d3bjbtnru42s3ugm75es09psurcd@4ax.com>
Source record: 65747

On Mon, 02 Jan 2006 13:34:54 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>Owen,
>
>That idea seems to work. I set it up and then looked and the 'interference', the
>change in phase based on changing the pad. Zero pad showed several degrees phase
>shift from -40 dbm, 10 dbm showed small shift, and 20, 30, and 40 were all about
>equal. I decided on 20 dbm as a practical base.

This doesn't make sense... are you using "dbm" to mean decibels of
attenuation, usually written "dB".

The units "dBm" are usually written to qualify a power level with
respect to one milliwatt.

The attenuator on your sig gen might be marked in dBm, but that
applies to the combination of the oscillator, possibly its level
meter, and the attenuator as a system.

Using the wrong terms for things is often a result of a concept gap!

A 20dB attenuator will reduce the effect of the reflected component to
about the same level as you would expect from a practical directional
coupler, more attenuation is better if you have the power from the sig
gen and the VVM probe chan can operate at the higher input level.

Owen
--

87. Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:13:23 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <7Ahuf.287$WY5.73@newsread2.news.pas.earthlink.net>
Source record: 65748

There's a figure at the bottom of
<http://www.tpub.com/neets/book10/42.htm> that shows current distribution on an antenna. Is there some book or source that describes how figures B and C and produced?

I'm guessing that one starts with an open ended transmission line, and looks at how the E and B fields are distributed along it. Then one peels the open end back until the two lines are pointing away from one another. One then ends up with E fields pretty much in a plane directed from one point on one side of the wire to the similar point on the other wire. Similarly the B fields encircle each wire. On one side they have a CC direction and the other a CC direction (looking in the direction of the current).

As a separate item, it would also seem that for a transmission line that is open ended the current flowing in one wire induces a current to flow in the opposite direction in the other wire. That is the current flows in the one wire because it does so by induction rather than it being physically part of the other wire.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

88. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:23:22 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <uJhuf.4857$fO5.1462@newssvr33.news.prodigy.com>
Source record: 65750

MK,
Unfortunately, grounds are sometimes necessary (neighbor, TVI/RFI),
even with dipoles/loops. Wish it weren't, I'm lazy...
'Doc

89. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:23:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rj9uu7bkogd37@corp.supernews.com>
Source record: 65749
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Dave Oldridge wrote:
>
> If the antenna is TRULY balanced and the feedline dressed well away from it
> at right angles you should have no common-mode currents on the feedline.
>. . .

That only prevents one of the two ways common mode current can be created, by coupling. It can also be created by conduction. A common example is a coax-fed dipole, where the current in the outer feedline conductor splits between the antenna conductor and the outside of the coax. An equivalent problem can occur when a dipole is fed with symmetrical line such as ladder line, and one conductor of the line is connected to the rig's chassis at the rig end. The current on the inside of the chassis is equal to the current from the "hot" conductor, and this splits between the transmission line conductor and the outside of the chassis. A detailed explanation of conducted common mode current can be found at http://eznec.com/Amateur/Articles/Baluns.pdf.

Roy Lewallen, W7EL

90. Re: measurement error or bad coax??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:31:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rjad95v7gfj8f@corp.supernews.com>
Source record: 65751

Fred McKenzie wrote:
> In article <11r1p7hf402smbd@corp.supernews.com>, Roy Lewallen
> <w7el@eznec.com> wrote:
>
>
>>Physically measure the line and calculate the velocity factor. For line
>>constructed like you describe, the velocity factor should be around 84%.
>>A significantly lower factor probably means it has water in it.
>
>
> Roy-
>
> Is this correct? As described, the "dielectric" is mostly air with some
> plastic used as a spacer. I would have expected something over 90%.

I was going by the manufacturer's specifications. I've never used this stuff myself. I think if you look at the construction you'll find more plastic and less air than you might expect.

> Back to the question of how to get the water out. If there is a large
> quantity, you might be able to pour it out. Beyond that, is there a
> common technique used to dry-out cable? (I suppose a shop-vac could be
> connected to one end and run for a while, on a day with low humidity.)

Hopefully someone else can help you there.

Roy Lewallen, W7EL

91. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:35:42 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rjalv5c4p4n4a@corp.supernews.com>
Source record: 65752

dansawyeror wrote:
> Now that the setup is reading consistently I will 'test' a loaded 2m
> monopole over a 1 m**2 ground plane.

I suggest that you start with an unloaded monopole or some very simple antenna with a well known impedance. (You will of course have to know and allow for the effect of the finite ground plane.)

You also need to take measures to prevent coupling between the antenna and the outside of the feedline. The ground plane you mention will help, but there can still be substantial coupling. Some high impedance ferrite beads at the feedpoint and another set about a quarter wavelength down should reduce the coupling to a small value.

Roy Lewallen, W7EL

92. building an antenna from midload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-02 22:49:16 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B9ADEC.3030209@comcast.net>
Source record: 65753

Reg,

I am planning on building an antenna based on midload.exe. For some reason the 'notes' do not appear so I cannot read them.

I plan to feed the antenna with coax. What are the hookup instructions? Is the coil actually cut? What does link coupling refer to?

There is a similar antenna in the ARRL handbook, however it does not appear to be cut. The shield is connected to a center tap and the coax center is tapped a few turns out.

The program predicts 40 turns with a coil tap of .8 turns. Which connection is this?

Thanks - Dan

93. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 00:10:02 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43B9C0DA.6010305@comcast.net>
Source record: 65754

I proceeded before reading this note. The procedure was to zero the phase meter on an short and then to test the loaded 2m vertical. The result was +10 dbm forward (before the 20 dbm pad) and -50 dbm reflected. The coupler measures about -14 dbm. The total was about -60 dbm, with 34 db of that due to the pad and coupler. The net is -26 db forward - reflected.

(The phase angle and reflected ware very touchy. It was almost impossible to adjust by changing frequency. It was easier to 'adjust' it by sitting very still and moving my arm.)

The antenna is a copy from the ARRL handbook. It is a 4 inch segment, a 1 inch long by 3/4 inch diameter 5 turn coil, and a 4 inch tip. It is mounted over a 2 foot square aluminum plate. This antenna should have an input impedance less then 20 Ohms.

How can it measure very close to 50 Ohms? Is there something wrong with this analysis?

Thanks - Dan

Roy Lewallen wrote:
> dansawyeror wrote:
>
>> Now that the setup is reading consistently I will 'test' a loaded 2m
>> monopole over a 1 m**2 ground plane.
>
>
> I suggest that you start with an unloaded monopole or some very simple
> antenna with a well known impedance. (You will of course have to know
> and allow for the effect of the finite ground plane.)
>
> You also need to take measures to prevent coupling between the antenna
> and the outside of the feedline. The ground plane you mention will help,
> but there can still be substantial coupling. Some high impedance ferrite
> beads at the feedpoint and another set about a quarter wavelength down
> should reduce the coupling to a small value.
>
> Roy Lewallen, W7EL

94. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 00:21:48 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rjgst2n8hun49@corp.supernews.com>
Source record: 65755

dansawyeror wrote:
> I proceeded before reading this note. The procedure was to zero the
> phase meter on an short and then to test the loaded 2m vertical. The
> result was +10 dbm forward (before the 20 dbm pad) and -50 dbm
> reflected. The coupler measures about -14 dbm. The total was about -60
> dbm, with 34 db of that due to the pad and coupler. The net is -26 db
> forward - reflected.
>
> (The phase angle and reflected ware very touchy. It was almost
> impossible to adjust by changing frequency. It was easier to 'adjust' it
> by sitting very still and moving my arm.)
>
> The antenna is a copy from the ARRL handbook. It is a 4 inch segment, a
> 1 inch long by 3/4 inch diameter 5 turn coil, and a 4 inch tip. It is
> mounted over a 2 foot square aluminum plate. This antenna should have an
> input impedance less then 20 Ohms.

How did you arrive at this figure? I wouldn't hazard a guess without
modeling it.

> How can it measure very close to 50 Ohms?

1. Inductor loss.
2. Effect of finite size ground plane.
3. Coupling to feedline.
4. Measurement error.

Is there something wrong with
> this analysis?

I don't know. What should the impedance really be?

Roy Lewallen, W7EL

95. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 00:45:45 UTC
From: Mike <km6ab@REMOVETHIS.pacbell.net>
Message-ID: <ZOjuf.44721$7h7.15842@newssvr21.news.prodigy.com>
Source record: 65756

Why is that? I use them all the time with excellent results.
Mike

Bill Turner wrote:
> ORIGINAL MESSAGE:
> End fed wires should only be used for transmitting when people are
> bleeding and the phone is out.
>
> 73, Bill W6WRT

96. Re: Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 02:28:17 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rjoa2qen3k216@corp.supernews.com>
Source record: 65757

W. Watson wrote:
> There's a figure at the bottom of
> <http://www.tpub.com/neets/book10/42.htm> that shows current
> distribution on
> an antenna. Is there some book or source that describes how figures B and C
> and produced?

A lot of authors of antenna and electromagnetics texts avoid the issue. There's a decent analysis in King, Mimno, and Wing, _Transmission Lines, Antennas, and Waveguides_. The problem is much more difficult when the antenna is longer than a half wavelength or when the wire diameter becomes significant. In those cases, a much more complex calculation is necessary, with only approximate results being available from closed form solutions. Numerical solution of a triple integral equation is the method usually used. That approach is necessary when there are nearby current-carrying conductors, since that alters the current distribution in ways which are usually too complex for other methods. A brief discussion of several methods of approaching the problem can be found in Sec. 14.11, "The Cylindrical Antenna Problem", in Jordan and Balmain, _Electromagnetic Waves and Radiating Systems".

> I'm guessing that one starts with an open ended transmission line, and
> looks
> at how the E and B fields are distributed along it. Then one peels the open
> end back until the two lines are pointing away from one another. One then
> ends up with E fields pretty much in a plane directed from one point on one
> side of the wire to the similar point on the other wire. Similarly the B
> fields encircle each wire. On one side they have a CC direction and the
> other a CC direction (looking in the direction of the current).

Using a transmission line as an analogy for antenna operation works just well enough to be dangerous. While it's a way to get an intuitive understanding of antenna operation, taking it too far can lead to some erroneous conclusions. One fundamental limitation is that classical analysis of a transmission line depends on the assumption that no radiation occurs, and that's certainly not the case for an antenna.

> As a separate item, it would also seem that for a transmission line that is
> open ended the current flowing in one wire induces a current to flow in the
> opposite direction in the other wire. That is the current flows in the one
> wire because it does so by induction rather than it being physically
> part of
> the other wire.

Yes, that's correct. If you assume that the entire field from one wire couples to the other, which is strictly true for coax and approximately

true for twinlead, it follows from Ampere's law that the current on one wire must be equal and opposite that on the other. This assumption of field coupling isn't true for an antenna, although coupling does indeed exist and it does have a profound effect on the currents.

Roy Lewallen, W7EL

97. Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 02:45:50 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <yzluf.167174$V7.159957@news-server.bigpond.net.au>
Source record: 65758

Hi,

I have a matching circuit that matches 50 Ohms to 4500 Ohms in parallel with 2.5pF at 45MHz.

The coil was measured at 147nH with a Q of 50 at 45 MHz.

The circuit is a C-Tap typology with following values.

Tap input to ground = 784pF
Tap to hot side of coil = 92pF
Par inductor = 147nH

My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.

I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.

A 4k7 resistor and 2p2 cap were placed across the output to simulate the correct load.

The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with calculated values).

When installed on the IF front end, the expected sensitivity is achieved when tuned. This would indicate most of the signal must be getting through or sensitivity would be effected due to mismatch.

All seems to look ok but when I attach the MJF-269 Analyzer I get impedance of 280 angle 35 degrees (240 -j 179) for the impedance, I get SWR = 6.1 , return loss of 2.8dB and match efficiency of 48%.

I cannot understand why there is such a discrepency between the design values and tested results (using sig gen, spectrum analyzer and power meter) compared to the MJF-269.

Is there something I am doing wrong here or is it a mis-interpretation of displayed values ?

Thanks for any help.

98. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 03:25:40 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpcqrk$t7t$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65759

"Owen Duffy" wrote

> Using the wrong terms for things is often a result of a concept gap!
>
==========

. . . . . and using the wrong name for an SWR meter often results in a
concept gap.

Reg.

99. Re: Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 03:27:16 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <oamuf.395$WY5.311@newsread2.news.pas.earthlink.net>
Source record: 65760

Roy Lewallen wrote:

> W. Watson wrote:
>
>> There's a figure at the bottom of
>> <http://www.tpub.com/neets/book10/42.htm> that shows current
>> distribution on
>> an antenna. Is there some book or source that describes how figures B
>> and C
>> and produced?
>
>
> A lot of authors of antenna and electromagnetics texts avoid the issue.
> There's a decent analysis in King, Mimno, and Wing, _Transmission Lines,
> Antennas, and Waveguides_. The problem is much more difficult when the
> antenna is longer than a half wavelength or when the wire diameter
> becomes significant. In those cases, a much more complex calculation is
> necessary, with only approximate results being available from closed
> form solutions. Numerical solution of a triple integral equation is the
> method usually used. That approach is necessary when there are nearby
> current-carrying conductors, since that alters the current distribution
> in ways which are usually too complex for other methods. A brief
> discussion of several methods of approaching the problem can be found in
> Sec. 14.11, "The Cylindrical Antenna Problem", in Jordan and Balmain,
> _Electromagnetic Waves and Radiating Systems".
>
>> I'm guessing that one starts with an open ended transmission line, and
>> looks
>> at how the E and B fields are distributed along it. Then one peels the
>> open
>> end back until the two lines are pointing away from one another. One then
>> ends up with E fields pretty much in a plane directed from one point
>> on one
>> side of the wire to the similar point on the other wire. Similarly the B
>> fields encircle each wire. On one side they have a CC direction and the
>> other a CC direction (looking in the direction of the current).
>
>
> Using a transmission line as an analogy for antenna operation works just
> well enough to be dangerous. While it's a way to get an intuitive
> understanding of antenna operation, taking it too far can lead to some
> erroneous conclusions. One fundamental limitation is that classical
> analysis of a transmission line depends on the assumption that no
> radiation occurs, and that's certainly not the case for an antenna.

>
>> As a separate item, it would also seem that for a transmission line
>> that is
>> open ended the current flowing in one wire induces a current to flow
>> in the
>> opposite direction in the other wire. That is the current flows in the
>> one
>> wire because it does so by induction rather than it being physically
>> part of
>> the other wire.
>
>
> Yes, that's correct. If you assume that the entire field from one wire
> couples to the other, which is strictly true for coax and approximately
> true for twinlead, it follows from Ampere's law that the current on one
> wire must be equal and opposite that on the other. This assumption of
> field coupling isn't true for an antenna, although coupling does indeed
> exist and it does have a profound effect on the currents.
>
> Roy Lewallen, W7EL
Thanks very much for the comments. They were helpful.

I managed to find "Neets Module 10-Introduction to Wave Propagation, Transmission Lines, and Antennas", a Naval Electrical Engineering book on the web at <Neets Module 10-Introduction to Wave Propagation, Transmission Lines, and Antennas>. It comes close to giving this subject a pretty reasonable treatment. A pretty fair intro. It gets to the point on a number of items pretty quickly. I think the modules are $3.00 each. They can be purchased on the web, but probably through the Govt. Printing Office. The whole set of Navy manuals is described at <http://www.tpub.com/content/neets/>.

I've seen that diagram on occasion and it has somewhat baffled me, but at least now I have some insight into what's going on. The most recent occurrence was Carr's fourth edition of "Practical Antennas Handbook". These diagrams all appeared out of nowhere as though they were quite obvious to the reader. I got the book through Amazon and have about 10 days on a 30 day period to return it, which I think I will. Unfortunately, Carr died a few years ago, so there will be no new changes to it.

It is tempting to look at his software CD for the book to see what antenna design tools are on it. I think I'll resist the temptation though. It would be interesting to know what some sort of total package looked like. I'm curious if there's some general design tool, or it's just a bunch of programs for different antennas. It would be interesting to know if one can start from some general set of requirements and the program would lead the designed to the appropriate design.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--

"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

100. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 04:30:21 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <j7vjr19h204o1390i4iupg3lqthdfcf6fd@4ax.com>
Source record: 65761

ORIGINAL MESSAGE:

On Tue, 03 Jan 2006 00:45:45 GMT, Mike <km6ab@REMOVETHIS.pacbell.net>
wrote:

>Why is that? I use them all the time with excellent results.
>Mike

~~~~~~

Your results are "excellent' because you've never used anything
better. Put up a modest yagi and prepare to be amazed. Even a good
dipole will beat a longwire worked against ground.

73, Bill W6WRT
~~~~~~

101. Re: building an antenna from midload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 05:54:44 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpd3j4$8ap$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65763

Dan,

To read the notes again, it is necessary to "go back to the start of program" from the 'results' screen.

The loading coil is always continuous from one end to the other. There are no breaks or cuts in it.

The coax line can have its braid attached directly to the centre of the coil with the inner coaxial conductor tapped into the coil a few turns away from the centre. But this is not recommended.

It is much easier to construct and adjust the number of link-turns by using a link-coupling coil. The link-coupling coil is wound over the top of the center of the main coil and is well insulated from it. You can use the same type of wire for both main and coupling coils.

Close-wound enamelled magnet wire is suitable except at the higher frequencies where not many turns are needed.

With link coupling either coax or balanced-twin feedline can be used. It is easier to change the number of turns on a link coil.

It may be necessary to change the number of turns on the link coil to provide an impedance match with the feedline impedance. The computed number of turns on the link coil is approximate. Only a whole number of turns is possible in practice.

When the feedline is directly tapped into the main coil, a soldering iron and other work is needed to change the number of tap turns.

Don't forget the antenna is a one-frequency, one-band, very narrow bandwidth antenna. To resonate the antenna exactly to a particular frequency it is necesary to prune the length of the loading wires or loading rods at each end of the main coil.

The antenna is easier to construct and adjust for use in a confined space such as an attic, at frequencies between 1.8 and 10 MHz.

Good DX in 2006.

Reg, G4FGQ.

==========

I am planning on building an antenna based on midload.exe. For some reason the
> 'notes' do not appear so I cannot read them.

>
> I plan to feed the antenna with coax. What are the hookup
instructions? Is the
> coil actually cut? What does link coupling refer to?
>
> There is a similar antenna in the ARRL handbook, however it does not
appear to
> be cut. The shield is connected to a center tap and the coax center
is tapped a
> few turns out.
>
> The program predicts 40 turns with a coil tap of .8 turns. Which
connection is
> this?
>
> Thanks - Dan
>

102. Re: Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 06:00:07 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Hpouf.9321$oW.8838@newssvr11.news.prodigy.com>
Source record: 65762

W. Watson wrote:
> I'm guessing that one starts with an open ended transmission line, and
> looks at how the E and B fields are distributed along it.

It's a standing-wave antenna. That means there is a forward
wave and a reflected wave. The forward current adds to the
reflected current all up and down the dipole. The magnitude
of the reflected current arriving back at the feedpoint is
approximately 90% of the forward current and are assumed to
be approximately equal by Kraus. The forward current
and reflected current are very close to being in phase at
the feedpoint. The forward and reflected current are equal in
magnitude and 180 degrees out of phase at the tip of the
dipole. The feedpoint impedance of a 1/2WL dipole is approximately
(|Vfor|-|Vref|)/(|Ifor|+|Iref|). The angle of the reflected current
is close to equal in magnitude and opposite in sign to the forward
current at any point along the dipole so the angle of the net
current is very close to zero degrees. The net current pictured
on that web page is a standing current wave with the same basic
shape as in a 1/4WL open-circuit stub.

That current distribution is illustrated in any antenna book,
including Kraus and Balanis. It's also in my 15th edition
ARRL Antenna Book.
--
73, Cecil http://www.qsl.net/w5dxp

103. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 06:17:58 UTC
From: nm5k@wt.net
Message-ID: <1136269078.138519.170020@g49g2000cwa.googlegroups.com>
Source record: 65764

> Unfortunately, grounds are sometimes necessary (neighbor, TVI/RFI),
>even with dipoles/loops. Wish it weren't, I'm lazy...
> 'Doc

Hummmm...Maybe, but I'm having a hard time of thinking
of the uses of a ground to cure said problems... Most
of those problems would seem to be better cured using chokes,
etc. If the problem is fundamental overload to their gear, any
grounding on your end won't cure that.
MK

104. Re: building an antenna from midload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 06:37:13 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43BA1B99.5060609@comcast.net>
Source record: 65765

Reg,

I am running Linux and using dosemu to run the programs. It is probably an issue with the dosemu.

The link-coupling coil is essentially a balun?

I am building a 40 foot 80 meter dipole (limited space). The program predicts about 10 Ohms input impedance and 1.1 'link coupling' turns. Does that imply essentially wrapping one turn on the coil for the coax connection? Can one turn provide enough impedance to match to the coil?

Thanks again - Dan

Reg Edwards wrote:
> Dan,
>
> To read the notes again, it is necessary to "go back to the start of
> program" from the 'results' screen.
>
> The loading coil is always continuous from one end to the other. There
> are no breaks or cuts in it.
>
> The coax line can have its braid attached directly to the centre of
> the coil with the inner coaxial conductor tapped into the coil a few
> turns away from the centre. But this is not recommended.
>
> It is much easier to construct and adjust the number of link-turns by
> using a link-coupling coil. The link-coupling coil is wound over the
> top of the center of the main coil and is well insulated from it. You
> can use the same type of wire for both main and coupling coils.
>
> Close-wound enamelled magnet wire is suitable except at the higher
> frequencies where not many turns are needed.
>
> With link coupling either coax or balanced-twin feedline can be used.
> It is easier to change the number of turns on a link coil.
>
> It may be necessary to change the number of turns on the link coil to
> provide an impedance match with the feedline impedance. The computed
> number of turns on the link coil is approximate. Only a whole number
> of turns is possible in practice.
>
> When the feedline is directly tapped into the main coil, a soldering
> iron and other work is needed to change the number of tap turns.
>

> Don't forget the antenna is a one-frequency, one-band, very narrow
> bandwidth antenna. To resonate the antenna exactly to a particular
> frequency it is necesary to prune the length of the loading wires or
> loading rods at each end of the main coil.
>
> The antenna is easier to construct and adjust for use in a confined
> space such as an attic, at frequencies between 1.8 and 10 MHz.
>
> Good DX in 2006.
> ----
> Reg, G4FGQ.
>
> ==========
>
> I am planning on building an antenna based on midload.exe. For some
> reason the
>
>>'notes' do not appear so I cannot read them.
>>
>>I plan to feed the antenna with coax. What are the hookup
>
> instructions? Is the
>
>>coil actually cut? What does link coupling refer to?
>>
>>There is a similar antenna in the ARRL handbook, however it does not
>
> appear to
>
>>be cut. The shield is connected to a center tap and the coax center
>
> is tapped a
>
>>few turns out.
>>
>>The program predicts 40 turns with a coil tap of .8 turns. Which
>
> connection is
>
>>this?
>>
>>Thanks - Dan
>>
>
>
>

105. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 06:42:53 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <h76kr1lkcd7902qq3kgbiv5oibdskna6bp@4ax.com>
Source record: 65766

On Mon, 02 Jan 2006 16:10:02 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

> The coupler measures
>about -14 dbm.

What does this mean? Are you trying to tell us that the power on the
coupler port is 14dB less than the through power? What has dBm got to
do with it?

You didn't report the power in the coupler port with a s/c and / or
o/c at the measurement plane. Did you perform this cal?

>(The phase angle and reflected ware very touchy. It was almost impossible to
>adjust by changing frequency. It was easier to 'adjust' it by sitting very still
>and moving my arm.)

That is understandable. How much coax between the A probe and the
load, and the B probe and the load... how many degress does this total
electrical length change for a 1% change in frequency? Does that
explain some of the phase sensitivity?

>
>The antenna is a copy from the ARRL handbook. It is a 4 inch segment, a 1 inch
>long by 3/4 inch diameter 5 turn coil, and a 4 inch tip. It is mounted over a 2
>foot square aluminum plate. This antenna should have an input impedance less
>then 20 Ohms.

Don't you need to measure some "known" loads. Why not try a 50 ohm
load tee'd to a s/c stub (quarter wave at a known frequency) and see
if you get the predictable results at different frequencies around
resonance. Then try two 50 ohm loads in parallel with the stub. (339mm
of RG58C/U should have a Z of around 6000+j0 ohms at around 146MHz, at
half that frequency it should be 0.85+j50, etc...

>
>How can it measure very close to 50 Ohms? Is there something wrong with this
>analysis?

See if you can trust your measurements on known loads before wondering
why the unknown load isn't what you expect when using unknown
measurement technology... too many unknowns.

Owen
--

106. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 07:06:43 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <td8kr1dlrifoifa1oc65n5qgfi1rldj2cg@4ax.com>
Source record: 65767

On Tue, 03 Jan 2006 06:42:53 GMT, Owen Duffy <owen@no.where> wrote:

>>(The phase angle and reflected ware very touchy. It was almost impossible to
>>adjust by changing frequency. It was easier to 'adjust' it by sitting very still
>>and moving my arm.)
>
>...Does that
>explain some of the phase sensitivity?

Hi Owen,

Being very touchy, especially to the specifics of sitting very still,
sounds like classic common mode problems.

73's
Richard Clark, KB7QHC

107. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 07:19:15 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rk9bkpb525lfa@corp.supernews.com>
Source record: 65768

nm5k@wt.net wrote:
>> Unfortunately, grounds are sometimes necessary (neighbor, TVI/RFI),
>>even with dipoles/loops. Wish it weren't, I'm lazy...
>> 'Doc
>
>
> Hummmm...Maybe, but I'm having a hard time of thinking
> of the uses of a ground to cure said problems... Most
> of those problems would seem to be better cured using chokes,
> etc. If the problem is fundamental overload to their gear, any
> grounding on your end won't cure that.
> MK

If you have an imbalance current trying to find its way to ground, it'll take the path of least resistance (technically, impedance). If that path is the mains wiring, you have a lot of potential for RFI. If you can convince some of that current to go elsewhere by "grounding" your station, you're likely to cut down the RFI. But a better solution is to get those feedline currents balanced so you won't have any imbalance or "ground" current to deal with in the first place. It brings the added benefit of putting the power into your antenna to be radiated rather than being radiated from the conductors carrying the imbalance current.

Roy Lewallen, W7EL

108. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 08:32:47 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpdcrf$8i3$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65769

Radiation from the feedline is usually the least of one's problems.

99 % of RFI is due to radiation from the very nearby antenna.

==========

109. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 08:36:41 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dndkr1hbg9plpf0b3b7c5glh0mfm8b4f1t@4ax.com>
Source record: 65770

On Mon, 02 Jan 2006 23:06:43 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Tue, 03 Jan 2006 06:42:53 GMT, Owen Duffy <owen@no.where> wrote:
>
>>>(The phase angle and reflected ware very touchy. It was almost impossible to
>>>adjust by changing frequency. It was easier to 'adjust' it by sitting very still
>>>and moving my arm.)
>>
>>...Does that
>>explain some of the phase sensitivity?
>
>Hi Owen,
>
>Being very touchy, especially to the specifics of sitting very still,
>sounds like classic common mode problems.

Yes it does Richard. I saw Roy's response regarding isolation of the
feedline, and it is a valid comment. My comment was towards the
reported frequency sensitivity... until the effect of the propagation
delay is removed from the results, the underlying impedance is
obsured.

Owen
--

110. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 08:54:34 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <gsu$XAGKvjuDFAhU@ifwtech.co.uk>
Source record: 65771

Reg Edwards wrote:
>Radiation from the feedline is usually the least of one's problems.
>
>99 % of RFI is due to radiation from the very nearby antenna.
>

That's rubbish - have you ever *measured* the RF currents in your
station wiring?

...no, I thought not.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

111. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 09:47:22 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <aoGxWWJqgkuDFA3c@ifwtech.co.uk>
Source record: 65772

Roy Lewallen wrote:
>nm5k@wt.net wrote:
>>> Unfortunately, grounds are sometimes necessary (neighbor, TVI/RFI),
>>>even with dipoles/loops. Wish it weren't, I'm lazy...
>>> 'Doc
>> Hummmm...Maybe, but I'm having a hard time of thinking
>> of the uses of a ground to cure said problems... Most
>> of those problems would seem to be better cured using chokes,
>> etc. If the problem is fundamental overload to their gear, any
>> grounding on your end won't cure that. MK
>
>If you have an imbalance current trying to find its way to ground,
>it'll take the path of least resistance (technically, impedance). If
>that path is the mains wiring, you have a lot of potential for RFI. If
>you can convince some of that current to go elsewhere by "grounding"
>your station, you're likely to cut down the RFI. But a better solution
>is to get those feedline currents balanced so you won't have any
>imbalance or "ground" current to deal with in the first place. It
>brings the added benefit of putting the power into your antenna to be
>radiated rather than being radiated from the conductors carrying the
>imbalance current.

Sometimes the improvements to the antenna and feedline are not enough to prevent interference. Also, RF grounding may be ineffective because it's impedance is too high to successfully shunt the ground current away from the mains wiring.

However, there is also a third option: use a series RF choke in the station mains feed. This can have two beneficial effects. It keeps the ground currents out of the mains where they can cause interference, and it can also reduce the incoming common-mode current on the feedline.

A suitable mains choke for the whole station can be made by winding *all* of the mains conductors (live, neutral and safety ground) on a stack of ferrite rings. It's necessary to choke all the mains wires because they are capacitively coupled together at RF. The choke is a high impedance at RF, but the safety ground wire is continuous through the choke. Alternatively you could thread all the wires through a string of large ferrite beads. Of course it's no coincidence that these mains chokes look a lot like the chokes you'd use on a feedline.

An alternative is to use a commercial three-wire mains filter, which has an RF choke in the ground conductor, as well as the normal pi-filter in the power conductors. (I wouldn't recommend a homebrew mains filter. The safety and code compliance issues are better left to full-time

specialists.)

Another essential is to organize the mains wiring of the whole station so that *all* the mains feeds and mains ground connections pass through the RF choke. (This goes along with the established safety recommendation to have one Big Red Switch supplying mains to the whole shack.) If there is a sneak path to ground that doesn't go through the station mains choke, then of course the RF current will take that easier path and the choke will be ineffective.

A clip-on RF current meter is an excellent trouble-shooting tool. There are constructional details on my 'In Practice' pages, and MFJ sell two different ready-made models.

When you have installed a station mains choke and eliminated all sneak ground paths, the RF current meter will show you two things:

1. Without an RF ground, the incoming common-mode currents should be significantly lower than before. In simple terms, common-mode feedline currents cannot enter the shack if you have choked off their exit path to ground.

If you try to look at the situation in more technical detail, there are more unknowns (such as distributed capacitance to ground) than you can accurately identify. That's why RFI is so hard to predict and generalize about. Therefore the best approach is always to *measure* the RF currents on all entering and exiting conductors, before and after each modification you try.

2. An RF ground connection may make the common-mode currents *worse* by providing a path through the station. If that is the case, then don't use an RF ground - it isn't compulsory to have one. (You still have to think about lightning protection, but that most certainly does *not* involve routeing the lightning currents to ground through your shack!)

There are three good articles on RF grounding in the public area of the ARRL website:
http://www.arrl.org/tis/info/grounding.html

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

112. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 10:02:28 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rkitl79f70v56@corp.supernews.com>
Source record: 65773

That's an interesting statistic. How did you arrive at it?

Roy Lewallen, W7EL

Reg Edwards wrote:
> Radiation from the feedline is usually the least of one's problems.
>
> 99 % of RFI is due to radiation from the very nearby antenna.
>
> ==
>
>

113. Re: Ideas for Inside 144/440 Mhz antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 10:15:14 UTC
From: cut this out <"lionelcarter\\@(cut this out)lineone.net">
Message-ID: <43ba4d7f$1_2@mk-nntp-1.news.uk.worldonline.com>
Source record: 65774

If it works for you OK, but I would be very wary of putting a mag mount
too close to my rig in case the innards are not effectively shielded.

Butch Magee wrote:
> I have a dualbander with a magmount stuck to the rig itself. It works
> just fine.
>
> KF5DE
>
> Gary KW4Z wrote:
>
>> I am not looking to punch any holes in the walls or ceiling to get a coax
>> from an outdoor 144/440 Mhz antenna. I'm setting up a mobile rig powered
>> off an Astron Power Supply in order to allow my wife to communicate on
>> some
>> of the local repeaters so she can talk to and follow me into work.
>>
>> The antenna can be simple as something that has a magnetic mount that
>> sets
>> on top of the power supply or something that might present some
>> measure of
>> gain. If any of you have eny experience with either building
>> antennas or
>> have one you purchased that you really like I would love to know what
>> it is
>> and consider it to fit my needs.
>>
>> Thanks in advance
>>
>> Gary
>>

114. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 12:52:55 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpds37$a0b$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65775

"Ian White GM3SEK" wrote
> Reg Edwards wrote:
> >Radiation from the feedline is usually the least of one's problems.
> >
> >99 % of RFI is due to radiation from the very nearby antenna.
> >
>
> That's rubbish - have you ever *measured* the RF currents in your
> station wiring?
>
==========

No, but I HAVE measured RF current in the antenna - from where most
RFI originates.

Have you ever run 400 watts from an 80 meter 1/2-wave dipole a few
feet above your roof and not far from the TV aerial?

Reg.

115. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 14:07:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpe0ef$s1h$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65676

Roy!

Just a legitimate crude guess - perhaps biassed a little in the
opposite direction to the normal excessive bias.

If I remember correctly, you, your very good self, used Eznec to
demonstrate that even under the most adverse worst-case conditions you
could think of, power radiated from the feedline is only a fraction of
that radiated from the antenna.

. . . . . and the equipment being interfered with is in the
near-field of the antenna just as it is in the near-field of the
feedline. That, for most people, includes your next-door neighbors.
Especially if your next-door neighbors happen to be within the antenna
beam.

Reg.

==========

"Roy Lewallen" wrote
> That's an interesting statistic. How did you arrive at it?
>
> Roy Lewallen, W7EL
>
> Reg Edwards wrote:
> > Radiation from the feedline is usually the least of one's
problems.
> >
> > 99 % of RFI is due to radiation from the very nearby antenna.

116. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 14:44:01 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <HTQG47Vx2ouDFA3D@ifwtech.co.uk>
Source record: 65677

Reg Edwards wrote:
>
>"Ian White GM3SEK" wrote
>> Reg Edwards wrote:
>> >Radiation from the feedline is usually the least of one's problems.
>> >
>> >99 % of RFI is due to radiation from the very nearby antenna.
>> >
>>
>> That's rubbish - have you ever *measured* the RF currents in your
>> station wiring?
>>
>==
>
>No, but I HAVE measured RF current in the antenna - from where most
>RFI originates.
>
Can't you see the circularity of your own 'logic'? If you haven't measured common-mode RF current in the feedline as well, you don't actually have a clue where the interference is originating. All you have is an unsubstantiated opinion.

>Have you ever run 400 watts from an 80 meter 1/2-wave dipole a few
>feet above your roof and not far from the TV aerial?

I'm not disputing that RFI very often originates from the antenna - of course it does (and the question you pose is a set-up, designed to make *sure* it does).

What I object to is your sweeping generalization that "99 % of RFI is due to radiation from the very nearby antenna." When absolute nonsense is delivered with absolute confidence, some unfortunate beginner might actually believe it.

However, since you asked...

In a typical small British back garden, I have been forced to do something very similar to what you describe. Sure enough, it caused RFI, but the interference was *not* due to my antenna! It was entirely mains-borne, and only to the two neighbours (not the closest) who were connected to the same phase as ourselves. The cause of the interference was that a substantial fraction of my RF ground current was going into the mains ground. Once I'd cleaned up my act and stopped injecting RF current into the mains, the interference stopped too.

The high field strength from my antenna wasn't a problem at all, and the neighbours continued to watch their TVs until I took the antenna down.

That's how it was in that one particular case.... but unlike you, I'm not claiming it represents 99% of anything.

With RFI, the only safe generalization is to keep your mind open to *all* possibilities.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

117. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 14:57:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6hwuf.51316$6e1.21830@newssvr14.news.prodigy.com>
Source record: 65678

Reg Edwards wrote:
> Radiation from the feedline is usually the least of one's problems.
>
> 99 % of RFI is due to radiation from the very nearby antenna.

In some cases, that nearby antenna is a counterpoise
laid across the floor which some people consider to
be a "ground" of sorts. :-)
--
73, Cecil http://www.qsl.net/w5dxp

118. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 15:06:17 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <FfudnZV99dd6DyfenZ2dnUVZ_smdnZ2d@comcast.com>
Source record: 65679

Reg Edwards wrote:
> Radiation from the feedline is usually the least of one's problems.
>
> 99 % of RFI is due to radiation from the very nearby antenna.
>
> ==
>

REALLY??

I thought most RFI issues, in today's world, are related to lack of selectivity in the device experiencing the interference. RFI is generally a susceptibility in the interefered with device. Read ALL the information provided and you should find a manufacturer's disclaimer.

If the transmitted signal is 'clean' [meets applicable standards] then the cause of RFI is SUSCEPTIBILITY in devices designed for MAXIMUM profit.

I'm not responsible for susceptibility issues. A neighbor complained that my station was coming through his computer speakers. I invited him to my station and turned on my computer and speakers. At 1 KW output there was/is no RFI in my speakers !!! [My computer is co-located with my station]. I suggested that he contact the manufacturer of the speakers and obtain information to reduce susceptibility. I showed him how I solved the susceptibility issue for my computer. The responsibility is now his.

119. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 15:15:21 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <96ydncE65lOaCCfeRVn-tw@comcast.com>
Source record: 65680

Have you considered that there may be non-linear effects in the test set up?

The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.

AK

David wrote:

> Hi,
>
> I have a matching circuit that matches 50 Ohms to 4500 Ohms in parallel
> with 2.5pF at 45MHz.
>
> The coil was measured at 147nH with a Q of 50 at 45 MHz.
>
> The circuit is a C-Tap typology with following values.
>
> Tap input to ground = 784pF
> Tap to hot side of coil = 92pF
> Par inductor = 147nH
>
> My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
>
> I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
>
> A 4k7 resistor and 2p2 cap were placed across the output to simulate the
> correct load.
>
> The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
> calculated values).
>
> When installed on the IF front end, the expected sensitivity is achieved
> when tuned. This would indicate most of the signal must be getting
> through or sensitivity would be effected due to mismatch.
>
> All seems to look ok but when I attach the MJF-269 Analyzer I get
> impedance of 280 angle 35 degrees (240 -j 179) for the impedance, I get
> SWR = 6.1 , return loss of 2.8dB and match efficiency of 48%.
>
> I cannot understand why there is such a discrepency between the design
> values and tested results (using sig gen, spectrum analyzer and power
> meter) compared to the MJF-269.
>
> Is there something I am doing wrong here or is it a mis-interpretation

> of displayed values ?
>
> Thanks for any help.

120. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 15:25:48 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <ve5lr1lmcl8iu8pttoaj51jh4e7en6hadc@4ax.com>
Source record: 65681

On Mon, 02 Jan 2006 21:56:37 GMT, Owen Duffy <owen@no.where> wrote:

>On Mon, 02 Jan 2006 13:34:54 -0800, dansawyeror
><dansawyeror@comcast.net> wrote:
>
>>Owen,
>>
>>That idea seems to work. I set it up and then looked and the 'interference', the
>>change in phase based on changing the pad. Zero pad showed several degrees phase
>>shift from -40 dbm, 10 dbm showed small shift, and 20, 30, and 40 were all about
>>equal. I decided on 20 dbm as a practical base.
>
>This doesn't make sense... are you using "dbm" to mean decibels of
>attenuation, usually written "dB".
>
>The units "dBm" are usually written to qualify a power level with
>respect to one milliwatt.
>
>The attenuator on your sig gen might be marked in dBm, but that
>applies to the combination of the oscillator, possibly its level
>meter, and the attenuator as a system.
>
>Using the wrong terms for things is often a result of a concept gap!
>
>A 20dB attenuator will reduce the effect of the reflected component to
>about the same level as you would expect from a practical directional
>coupler, more attenuation is better if you have the power from the sig
>gen and the VVM probe chan can operate at the higher input level.

Owen

Let me pick a nit or two.

More attenuation is not necessarily better. In theory the improvement
in source match is two times the attenuation, so a 10 dB pad improves
the return loss to no less than 20 dB, even with a zero ohm source,
and with a decent source match of RL = 10 dB or so, is as good as you
need. (I know you know this already)

I say this because it's very likely that the return loss of the
attenuator isn't any better than 25-30 dB, regardless of its
attenuation. For example Narda makes a "precision" Type N attenuator:

http://www.nardamicrowave.com/east/PassiveComponents/pdf/attenuators/FixedPrecision.pdf

Note the VSWR spec, 1.15 at low frequency. That's a 23 dB RL. So although a 20 dB pad in theory provides a minimum 40 dB RL, the actual RL can be as little as 23 dB.

Manufacturers have to work really hard and typically use a precision connector like 3.5mm or 7mm to build a 40 dB RL termination although Anritsu will sell you a 40 dB RL type N termination for -only- $650 USD.

Also, and this goes back a post or two, where you suggested that if a pad is used between the generator and the input to the coupler, the "A" probe (reference/incident) should be between the generator and the pad.

This is contrary to what I tried to recommend earlier when I said:

"It would also be nice it you had a 6 - 10 dB pad between the generator and the directional coupler (DC); located right at the DC. You want the source match to be set right there and the A probe to sample right there."

Let me offer this thought experiment:

If you had two directional couplers, such that one could be used to sample the forward signal and the other the reflected, would you place a pad between them to isolate the generator from the effects of the load?

121. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 15:49:42 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97404FA21F394doldridgsprintca@64.59.135.159>
Source record: 65682
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Roy Lewallen <w7el@eznec.com> wrote in
news:11rj9uu7bkogd37@corp.supernews.com:

> Dave Oldridge wrote:
>>
>> If the antenna is TRULY balanced and the feedline dressed well away
>> from it at right angles you should have no common-mode currents on
>> the feedline.
> >. . .
>
> That only prevents one of the two ways common mode current can be
> created, by coupling. It can also be created by conduction. A common
> example is a coax-fed dipole, where the current in the outer feedline
> conductor splits between the antenna conductor and the outside of the
> coax. An equivalent problem can occur when a dipole is fed with
> symmetrical line such as ladder line, and one conductor of the line is
> connected to the rig's chassis at the rig end. The current on the
> inside of the chassis is equal to the current from the "hot"
> conductor, and this splits between the transmission line conductor and
> the outside of the chassis. A detailed explanation of conducted common
> mode current can be found at
> http://eznec.com/Amateur/Articles/Baluns.pdf.
>
> Roy Lewallen, W7EL

Still, if the antenna is TRULY balanced (a situation that only rarely
actually happens), you won't get common-mode currents. I've never had a
problem with them with well-grounded (from an RF standpoint) ground-
mounted verticals either.

Essentially this is why I recommend using open wire or twinlead and
feeding it through a proper balanced-line tuner. Years ago, I built an
amplifier that literally had a balanced line output and fed a 600-ohm
feeder direct off two taps on its output coil. That feedline was only
ten feet long and I worked a TON of 80m DX an the inverted vee that it
connected to. And I could always tap the coil so as to have ZERO RF in
the shack (though my landlady's little 7.5 watt light bulbs used to light
on some frequencies when the house wiring picked up direct from the
antenna).

--
Dave Oldridge+
ICQ 1800667

122. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 15:52:19 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97405013C6213doldridgsprintca@64.59.135.159>
Source record: 65683

Allodoxaphobia <bit-bucket@config.com> wrote in
news:slrndrik5n.2p1i.bit-bucket@shell.config.com:

> On Mon, 02 Jan 2006 14:33:18 GMT, Dave Oldridge wrote:
>> Chris W <1qazse4@cox.net> wrote in
>> news:IT3tf.45644$ih5.19066@dukeread11:
>>
>>> I want to put a short 2 meter yagi and a long 70cm yagi on the same
>>> vertical mast. The 70cm will be a horizontally polarized, center
>>> mounted 17' boom and the 2 meter will be a vertically polarized, end
>>> mounted 6 foot boom. How far apart do they need to be? I will only
>>> be transmitting with one at a time but one could be receiving and
>>> the other transmitting, the 70cm will be for ATV receive only for
>>> now.
>>
>> A good rule of thumb is to separate them by at least a half-wave at
>> the lowest frequency. In this case that means about a meter (39")
>> apart.
>
> Not when they are orthogonally polarized. They can be 0.000
> wavelengths apart. I.e., in the OP's case, the 2M elements can be
> _mounted_ on the 70cm's boom.

You're right. I didn't catch the polarization thing. In fact, building
them on the same boom would be quite workable.

--
Dave Oldridge+
ICQ 1800667

123. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 16:24:01 UTC
From: chuck <nospam@nospam.com>
Message-ID: <Byxuf.2053$%W1.241@newsread2.news.atl.earthlink.net>
Source record: 65684
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Is it not true that if the currents on the transmission line are unbalanced (i.e., unequal on the two conductors) then the transmitter must already be connected to ground? If not, what is the path of the differential current?

Chuck

Dave Oldridge wrote:

> Roy Lewallen <w7el@eznec.com> wrote in
> news:11rj9uu7bkogd37@corp.supernews.com:
>
>> Dave Oldridge wrote:
>>>
>>> If the antenna is TRULY balanced and the feedline dressed well away
>>> from it at right angles you should have no common-mode currents on
>>> the feedline.
>> >. . .
>>
>> That only prevents one of the two ways common mode current can be
>> created, by coupling. It can also be created by conduction. A common
>> example is a coax-fed dipole, where the current in the outer feedline
>> conductor splits between the antenna conductor and the outside of the
>> coax. An equivalent problem can occur when a dipole is fed with
>> symmetrical line such as ladder line, and one conductor of the line is
>> connected to the rig's chassis at the rig end. The current on the
>> inside of the chassis is equal to the current from the "hot"
>> conductor, and this splits between the transmission line conductor and
>> the outside of the chassis. A detailed explanation of conducted common
>> mode current can be found at
>> http://eznec.com/Amateur/Articles/Baluns.pdf.
>>
>> Roy Lewallen, W7EL
>
> Still, if the antenna is TRULY balanced (a situation that only rarely
> actually happens), you won't get common-mode currents. I've never had a
> problem with them with well-grounded (from an RF standpoint) ground-
> mounted verticals either.
>
> Essentially this is why I recommend using open wire or twinlead and
> feeding it through a proper balanced-line tuner. Years ago, I built an
> amplifier that literally had a balanced line output and fed a 600-ohm
> feeder direct off two taps on its output coil. That feedline was only
> ten feet long and I worked a TON of 80m DX an the inverted vee that it
> connected to. And I could always tap the coil so as to have ZERO RF in

> the shack (though my landlady's little 7.5 watt light bulbs used to light
> on some frequencies when the house wiring picked up direct from the
> antenna).
>
>

124. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 16:24:17 UTC
From: Dan Richardson <>
Message-ID: <t29lr1dfrl26u6266vvpediaim7r1bujcd@4ax.com>
Source record: 65685

On Tue, 3 Jan 2006 14:44:01 +0000, Ian White GM3SEK
<gm3sek@ifwtech.co.uk> wrote:

>Can't you see the circularity of your own 'logic'? If you haven't
>measured common-mode RF current in the feedline as well, you don't
>actually have a clue where the interference is originating. All you have
>is an unsubstantiated opinion.

Ian, Ian you should know by now you're dealing with the "Prince of
Factoids".

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

125. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 16:25:56 UTC
From: Dan Richardson <>
Message-ID: <fb9lr1dcmbeosi0ssaju0jfksg5184sh19@4ax.com>
Source record: 65686

On Mon, 02 Jan 2006 20:30:21 -0800, Bill Turner <noway@nohow.com>
wrote:

>Even a good
>dipole will beat a longwire worked against ground.

Not always!

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

126. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 16:37:40 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpe98k$e1j$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65687

Tim!

I was out of order confusing your design services with baluns. Please accept my apologies. But I did make it clear that CHOKE baluns were involved. You may see elsewhere what a choke balun actually is.

If you already have a balanced tuner then by all means use it. But if you don't have one there's no need to make one or buy one.

It is more convenient to use an ordinary unbalanced tuner plus a very simple to make choke balun which has no particular impedance matching properties apart from being a very short length of transmission line of predictable Zo and predictable phase shift which don't matter very much.

It seems my rhetorical question has inadvertently stirred up quite a discussion the newsgroup.

I wish you much success with Wescott Design Services in 2006.

Reg, just a radio amateur, G4FGQ.

127. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 17:02:13 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <f3blr114sec1nejhvbijrb6efg9gqqep5o@4ax.com>
Source record: 65688

On Tue, 3 Jan 2006 16:37:40 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

Hi Reggie,

>It seems my rhetorical question has inadvertently

Inadvertently? From you? Heaven forfend!

>stirred up quite a discussion the newsgroup.

Aside from the grammatical error (missing preposition?) "quite a
discussion" at a count of 9 (now 10) posts nearly half of which were
you own?

Old Son, you are the Donald Trump of rraa. [Don't worry, he's never
written a bible of any sort.]

73's and Happy New Year Punchinello,
Richard Clark, KB7QHC

128. Re: converting dBm to uV/m

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 17:10:19 UTC
From: richardharrison@webtv.net
Message-ID: <7296-43BAAFFB-517@storefull-3254.bay.webtv.net>
Source record: 65689

Richard Clark wrote:
"---where dBm is frequently a short hand for dB (re1 mW into 600 Ohms)---."

I agree, but I`ve worked with communicatiobs systems in which the builder specified signal (test-tone) levels throughout in dBm regardless of the impedance at the particular point. Incinvenient, maybe, but often the conversion factor is specified for reading with a dB meter calibrated for 600 Ohms.

dB is a power ratio. dBm is a power level for which the 0 dBm reference is 1 milliwatt. The impedance is not specified. 2 milliwatts is approximately +3 dBm and 1/2 milliwatt is approximately -3 dBm.

The a-c voltmeter which reads in dB is likely calibrated at 600 Ohms impedance. Volts vary as the square root of the power. +6 dB is 4X the power but only double the voltage.

dBm is frequently specified as a test-tone level at various points throughout a communications system. The dB meter will only be correct when the impedance at the measurement point imatches the impedance for which the meter is calibrated. When the impedance is different, The system builder will often give a correction factor to be used with a 600-Ohm dB meter.

Knowing the power level in milliwatts, the a-c volts are easily calculated from the square toot of PR.

Best regards, Richard Harrison, KB5WZI

129. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 17:32:41 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpecfpbu1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65690

<Dan Richardson> wrote
> My link coupled tuner (Johnson Matchbox) cost me less than 60 USD, I
> can tuner faster than a T-type tuner, doesn't need nor use a balun.
> (Read one less component and its associated loss). So why would I
want
> to replace it with something that works almost as good?
>
> Danny,
> K6MHE
==========

Danny Boy,

If you are happy with your link-coupled tuner, which can be either balanced or unbalanced, then by all means stick with it. I must admit it is something I forgot about.

Many years back I had a similar commercial tuner. It didn't cover enough bands for me. So I dismantled it. The only parts worth recovering were the slow-motion variable capacitor drives and the nice skirted tuning knobs. Which I still have. They are of sentimental value.

Ever since then I have used only home-brewed tuners with coils and capacitors connected with universal alligator clips. But never of the balanced variety.

I wish you the very best of DX for 2006.

Reg, G4FGQ.

130. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 17:58:02 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpedva$457$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65691

Hi Richard (Clark)!

As usual you contribute nothing towards the technical knowledge of the readers. Who cares about them anyway?

But I'm pleased you are still reading my stuff and am gratified to receive your seasonal greetings.

May I, in return, wish You personally, Your Family and Friends, a Prosperous and Peaceful 2006. And while I'm about it, 2007, 2008, 2009 . . . . . !

Yours, Punchinello

131. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 18:03:54 UTC
From: Dan Richardson <>
Message-ID: <n1flr19emnqm5771e722dj4ne1ol3t7d61@4ax.com>
Source record: 65692

On Tue, 03 Jan 2006 16:24:01 GMT, chuck <nospam@nospam.com> wrote:

>Is it not true that if the currents on the transmission line are unbalanced
>(i.e., unequal on the two conductors) then the transmitter must already be
>connected to ground? If not, what is the path of the differential current?
>
>Chuck

Think about it. If there is no path there would be no current!

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

132. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 18:44:03 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <fYmdnbAKiJt7WCfeRVn-gQ@comcast.com>
Source record: 65693

"Amos Keag" <A.K01@comcast.net> wrote in message
news:96ydncE65IOaCCfeRVn-tw@comcast.com...
> Have you considered that there may be non-linear effects in the test set
> up?
>
> The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
> Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.
>
> AK
>
> David wrote:
>
>> Hi,
>>
>> I have a matching circuit that matches 50 Ohms to 4500 Ohms in parallel
>> with 2.5pF at 45MHz.
>>
>> The coil was measured at 147nH with a Q of 50 at 45 MHz.
>>
>> The circuit is a C-Tap typology with following values.
>>
>> Tap input to ground = 784pF
>> Tap to hot side of coil = 92pF
>> Par inductor = 147nH
>>

These seem like horrendously large capacitors to use at 45 MHz.

>> My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
>>
>> I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
>>
>> A 4k7 resistor and 2p2 cap were placed across the output to simulate the
>> correct load.
>>
>> The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
>> calculated values).

For an unloaded Q of 50, I would shoot for a loaded Q of around 5. If you
plan to put any power through this, try getting the unloaded Q up to around
200, with a loaded Q of around 8.

My guess is that if you remove the 4.7K, the impedance at the other end of
the network will not change all that much.

Tam/WB2TT

133. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 19:01:32 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <fSzuf.46659$ih5.45553@dukeread11>
Source record: 65694

Dave Oldridge wrote:

>Allodoxaphobia <bit-bucket@config.com> wrote in
>news:slrndrik5n.2p1i.bit-bucket@shell.config.com:
>
>
>
>>On Mon, 02 Jan 2006 14:33:18 GMT, Dave Oldridge wrote:
>>
>>
>>>Chris W <1qazse4@cox.net> wrote in
>>>news:IT3tf.45644$ih5.19066@dukeread11:
>>>
>>>
>>>
>>>>I want to put a short 2 meter yagi and a long 70cm yagi on the same
>>>>vertical mast. The 70cm will be a horizontally polarized, center
>>>>mounted 17' boom and the 2 meter will be a vertically polarized, end
>>>>mounted 6 foot boom. How far apart do they need to be? I will only
>>>>be transmitting with one at a time but one could be receiving and
>>>>the other transmitting, the 70cm will be for ATV receive only for
>>>>now.
>>>>
>>>>
>>>A good rule of thumb is to separate them by at least a half-wave at
>>>the lowest frequency. In this case that means about a meter (39")
>>>apart.
>>>
>>>
>>Not when they are orthogonally polarized. They can be 0.000
>>wavelengths apart. I.e., in the OP's case, the 2M elements can be
>>_mounted_ on the 70cm's boom.
>>
>>
>
>You're right. I didn't catch the polarization thing. In fact, building
>them on the same boom would be quite workable.
>
>
>
What if they are 2 different antennas and you can't put them on the same
boom, how close can I put them?

--
Chris W

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134. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 19:29:21 UTC
From: nm5k@wt.net
Message-ID: <1136316561.623906.5570@f14g2000cwb.googlegroups.com>
Source record: 65695

If you have an imbalance current trying to find its way to ground,
it'll
take the path of least resistance (technically, impedance). If that
path
is the mains wiring, you have a lot of potential for RFI. If you can
convince some of that current to go elsewhere by "grounding" your
station, you're likely to cut down the RFI. But a better solution is to
get those feedline currents balanced so you won't have any imbalance or
"ground" current to deal with in the first place. It brings the added
benefit of putting the power into your antenna to be radiated rather
than being radiated from the conductors carrying the imbalance current.

Exactly. This is why I call the "grounding" method a bandaid.
I think the 2nd solution is the best route to go. And if you use
the 2nd solution, the length of the line, and the location or height
above ground will not matter. And no worrying about getting a
good rf ground, which is hard to do in many remote locations of
a building.
MK

135. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 19:34:04 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <MkAuf.1519$xz.791@newssvr17.news.prodigy.com>
Source record: 65696

MK,
The 'problem' wasn't completely on my end (neighbor's defective devices), but a good grounding did help cure the a RFI. Is grounding a 'sure thing' as a cure? Nope, but it certainly doesn't hurt if it's at all possible, which isn't always a 'sure thing'.
Also used to use a fence around the place as a ground. Very BAD idea since the fence was connected to the neighbor's fence too. Just 'took' the RF closer to the neighbor, probably a 'sort' of direct connection to his 'stuff'. Always a 'bad' idea? No, but something to think about.
'Doc

136. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 19:42:33 UTC
From: Joe McElvenney <ximac@btinternet.com>
Message-ID: <hgklr1p1bn7gl0n354t2pq7sab2vks6c34@4ax.com>
Source record: 65697

Hi,

A little obvious perhaps but have you tried a 50-ohm resistor across the output of the 269 to check its calibration. I have a 259B and will wind a similar inductor to see what results that network yields. I did a SPICE run on your values and it came up with figures within the correct range although phase resonance and maximum impedance were off by a MHz or so.

Will report back - Joe

137. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 20:04:02 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <2jllr1d3bgiod019673n1b00vnfcagj91u@4ax.com>
Source record: 65698

On Tue, 03 Jan 2006 08:25:48 -0700, Wes Stewart <n7ws*@*yahoo.com>
wrote:

...
>Owen
>
>Let me pick a nit or two.
>
>More attenuation is not necessarily better. In theory the improvement
>in source match is two times the attenuation, so a 10 dB pad improves
>the return loss to no less than 20 dB, even with a zero ohm source,
>and with a decent source match of RL = 10 dB or so, is as good as you
>need. (I know you know this already)
>
>I say this because it's very likely that the return loss of the
>attenuator isn't any better than 25-30 dB, regardless of its
>attenuation. For example Narda makes a "precision" Type N attenuator:
>
>http://www.nardamicrowave.com/east/PassiveComponents/pdf/attenuators/FixedPrecision.pdf
>
>Note the VSWR spec, 1.15 at low frequency. That's a 23 dB RL. So
>although a 20 dB pad in theory provides a minimum 40 dB RL, the actual
>RL can be as little as 23 dB.
>
>Manufacturers have to work really hard and typically use a precision
>connector like 3.5mm or 7mm to build a 40 dB RL termination although
>Anritsu will sell you a 40 dB RL type N termination for -only- $650
>USD.
>
>Also, and this goes back a post or two, where you suggested that if a
>pad is used between the generator and the input to the coupler, the
>"A" probe (reference/incident) should be between the generator and the
>pad.
>
>This is contrary to what I tried to recommend earlier when I said:
>
>"It would also be nice it you had a 6 - 10 dB pad between the
>generator and the directional coupler (DC); located right at the DC.
>You want the source match to be set right there and the A probe to
>sample right there."
>
>Let me offer this thought experiment:
>
>If you had two directional couplers, such that one could be used to

>sample the forward signal and the other the reflected, would you place
>a pad between them to isolate the generator from the effects of the
>load?

No, of course not... it just adds another source of error, and
increases the gap between the measurements being made on both probes.

But Dan does not have two directional couplers. To my mind, if the A
probe is sampling the main transmission line, the sample is of the
resultant of the algebraic sum of the forward and reflected waves
rather than a sample of the forward wave alone (well, nearly alone) as
you would get with a directional coupler. My suggestion of placing the
A probe on the source side of the attenuator is to reduce the
contribution of the reflected wave to the A probe measurement. The
attenuator was proposed mainly for isolation of the forward wave
component for measurement, rather than a source matching issue...
which also exists.

Have I got this wrong?

All comments on practical limits of RL from pads / attenuators noted,
and understood.

Owen

>
>
--

138. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 21:04:39 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rlpn8hc1vur30@corp.supernews.com>
Source record: 65699

Reg, it would really be nice if you could come up with some new topics to keep you entertained on those dull evenings. You brought that one up just four months ago. Maybe you can keep a list of your favorites, noting when you used each one the last time, and giving us a little longer break between repetitions.

Reg Edwards wrote:
> Roy!
>
> Just a legitimate crude guess - perhaps biassed a little in the
> opposite direction to the normal excessive bias.
>
> If I remember correctly, you, your very good self, used Eznec to
> demonstrate that even under the most adverse worst-case conditions you
> could think of, power radiated from the feedline is only a fraction of
> that radiated from the antenna.

Sorry, you don't remember correctly. I said on quite a number of occasions (and you once even agreed) that you can't assign radiated powers from different parts of an antenna system. It was actually kind of sad -- you kept loudly demanding that I provide fractions of power from the feedline and antenna, ignoring my statements that it couldn't be apportioned that way, and some time later you said out of the blue that it couldn't. And then you wrote a program that does just that. At the end of this posting is a summary of your contradictory statements which I originally posted here on Sept. 1.

I did find with EZNEC that the current on a feedline could be very much larger than your program predicts.

> . . . . . and the equipment being interfered with is in the
> near-field of the antenna just as it is in the near-field of the
> feedline. That, for most people, includes your next-door neighbors.
> Especially if your next-door neighbors happen to be within the antenna
> beam.

Depends on the orientation of your antenna and the size of your lot. My antennas are some distance from the house, but the feedlines come right inside.

----- My posting on this group on 9-1-2005 -----

If anyone besides me is having trouble keeping track of what Reg is trying to say, maybe the following recent quotes will help. That is, they'll help you understand why you're having trouble keeping track.

For what it's worth, I agree with the first quotation of 8/31. But apparently Reg doesn't, even though he said it.

Roy Lewallen, W7EL

8/30:

Perhaps somebody might be prepared to state the power actually radiated from feedlines in watts. At least it may create the impression you know what you are talking about.

8/30:

Roy, do everybody a favour, by stating, numerically, how much power is radiated from feedlines. Then somebody might have some confidence in what you are bafflegabbing about.

8/31:

Any current which finds its way on to (3), which ought to flow in the antenna, will result in the coax participating in the radiation pattern of the whole antenna structure.

BUT IT IS A SILLY QUESTION TO ASK HOW MANY WATTS ARE RADIATED FROM THE FEEDLINE.

OR, CONVERSELY, HOW MANY MICROWATTS ARE PICKED UP BY THE FEEDLINE ON RECEIVE.

The feedline cannot be treated in isolation as if it behaves independently of the antenna. For starters, the radiation resistances of the feedline and antenna do not add arithmetically. They interact with each other.

8/31:

If you erect a 10 meter 1/2-wave dipole and center-feed it with a 50 feet length of coax, and then transmit on 1.9 MHz, 99.9 percent of available power will be radiated from the feedline and only 0.1 percent from the antenna itself.

http://www.smeter.net/feeding/feedpowr.php:

Centre-Fed Dipole - Radiation from Coaxial Feedline
Author: R.J.Edwards G4FGQ ï¿½ 25th March 2003

Program Notes
. . .
With no loss in accuracy, to simplify the model, the transmitter is located at the dipole centre and the coaxial line is replaced by a single conductor of the same diameter as the coaxial braid. There are 3 radiating elements. Radiation resistance, input impedance, and input current of each element is calculated. Finally, the percent of total power radiated by each of the three elements is calculated.

Roy Lewallen, W7EL

139. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 21:19:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rlqiv2po14n6d@corp.supernews.com>
Source record: 65700
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Dave Oldridge wrote:
>
> Still, if the antenna is TRULY balanced (a situation that only rarely
> actually happens), you won't get common-mode currents.

That's true only if by "balanced" you mean that the two feedline conductors carry equal and opposite currents. In that case, common mode current is zero by definition. But if you really mean symmetrical, as most amateurs do when they say "balanced", you certainly can have common mode current.

A detailed explanation of how that happens is in the article at http://eznec.com/Amateur/Articles/Baluns.pdf, and the article by Walt Maxwell, W2DU at http://www.w2du/r2ch21.pdf which is referenced at the end of the first article? Note particularly figures 3 and 4 of the Baluns.pdf article.

> I've never had a
> problem with them with well-grounded (from an RF standpoint) ground-
> mounted verticals either.

The reason this provides balanced feedline currents is that the impedance to ground at the base of the antenna is much less than the impedance looking back from the feedpoint down along the outside of the feedline. Consequently, the large majority of the current from the inside of the coax shield flows to ground rather than down the outside of the coax. And laying the coax on the ground keeps coupled common mode current down.

>
> Essentially this is why I recommend using open wire or twinlead and
> feeding it through a proper balanced-line tuner.

That combination will produce a truly balanced system with no common mode current. But it's not the only way.

>. . .

Years ago, I built an
> amplifier that literally had a balanced line output and fed a 600-ohm
> feeder direct off two taps on its output coil. That feedline was only
> ten feet long and I worked a TON of 80m DX an the inverted vee that it
> connected to. And I could always tap the coil so as to have ZERO RF in
> the shack (though my landlady's little 7.5 watt light bulbs used to light
> on some frequencies when the house wiring picked up direct from the
> antenna).

>
>

140. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 21:26:34 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rlr0cabfufv8c@corp.supernews.com>
Source record: 65701

chuck wrote:
> Is it not true that if the currents on the transmission line are unbalanced
> (i.e., unequal on the two conductors) then the transmitter must already be
> connected to ground? If not, what is the path of the differential current?

Your thinking is correct. If you had a small, battery operated rig, you could theoretically force current balance by completely isolating it from ground. You might burn yourself when you touch it, though.

In practice, differential current can flow to ground via capacitive coupling from the rig to ground, or by flowing onto any connecting wires such as power supply, speaker, or key leads, which will radiate.

Common mode feedline current is generally sinusoidally distributed. So you can have a relatively small common mode current at the rig but a much larger one at places on the feedline, if the rig happens to fall at a common mode current node. When the current is due to coupling, a single balun will be ineffective if placed at a natural current node, or in some other cases will only change the distribution by moving the node, rather than reducing the overall current. In those cases, two baluns placed about a quarter wavelength apart are effective.

Roy Lewallen, W7EL

141. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 21:46:22 UTC
From: johan aeq <pe1aeq@amsat.og>
Message-ID: <1abf5$43baf2df$52ad139c$24330@news.versatel.nl>
Source record: 65702

Thanks Reg, i already have such a tuner but never thought it would be usful
with varying impedances.
I hope 2006 will be good for you too...
Greetings Johan PE1AEQ

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> schreef in bericht
news:dpc213gqd1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
>
> "johan aeq" wrote
> > So a simple "pi filter" withe a bulun will do the same?
> > I always thought that the wide impedancerange of open wire made a
> > currentbalun or voltagebalun unusable.
> > I was just gathering parts to build my own balanced tuner....
> > Greetings Johan PE1AEQ
> >
> ==
> All kinds of peculiar things can happen with voltage baluns and
> current baluns which have a definite impedance ratio.
>
> But my comments apply to a CHOKE balun, the most simple form of balun.
> It is a pair of wires wound together on a ferrite ring. It is just a
> very short 2-wire transmission line. For longitudinal currents it is
> an RF choke, the 2 wires being effectively connected in parallel.
>
> The impedances between which it can work are indeterminate. There is
> no impedance ratio.
>
> When connected between a balanced line and an unbalanced tuner, the
> tuner can be an ordinary simple L, Pi or T network.
>
> If you happen to have a balanced tuner, lying around doing nothing,
> then by all means use it without a balun. But if you don't have a
> balanced tuner, as is very likely, there's no need to make one. Just
> use a common or garden unbalanced tuner, which nearly everybody has
> already got, with a CHOKE balun.
>
> The hardest part of making a choke balun is obtaining the ferrite
> ring. 50mm outside diameter, 30mm inside diameter, permeability
> 200-400, about 16 turns of twin, flexible, stranded, speaker cable,
> will be OK for the HF bands. Or similar.
>
> All the very best for 2006.
> ----
> Reg, G4FGQ.

>
>

142. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 21:57:19 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <3rCuf.167640$V7.100747@news-server.bigpond.net.au>
Source record: 65703

Amos,

The circuit is passive (R/L/C) only. I would not expect any non-linearity.

I suspect the previous post may have been correct. The match was over a large ratio of impedance (50 Ohms to 4500 Ohms). I expect the small value of inductor and reasonably low Q was limiting the performance of the circuit.

I tried the match again from 50 Ohms to 800 Ohms as a test and found the MJ-269 showed match efficiency of 90% with SWR dropping to 1.8. These results are much better.

Regards

David

Amos Keag wrote:
> Have you considered that there may be non-linear effects in the test set
> up?
>
> The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
> Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.
>
> AK
>
> David wrote:
>
>> Hi,
>>
>> I have a matching circuit that matches 50 Ohms to 4500 Ohms in
>> parallel with 2.5pF at 45MHz.
>>
>> The coil was measured at 147nH with a Q of 50 at 45 MHz.
>>
>> The circuit is a C-Tap typology with following values.
>>
>> Tap input to ground = 784pF
>> Tap to hot side of coil = 92pF
>> Par inductor = 147nH
>>
>> My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
>>
>> I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
>>
>> A 4k7 resistor and 2p2 cap were placed across the output to simulate

>> the correct load.
>>
>> The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
>> calculated values).
>>
>> When installed on the IF front end, the expected sensitivity is
>> achieved when tuned. This would indicate most of the signal must be
>> getting through or sensitivity would be effected due to mismatch.
>>
>> All seems to look ok but when I attach the MJF-269 Analyzer I get
>> impedance of 280 angle 35 degrees (240 -j 179) for the impedance, I
>> get SWR = 6.1 , return loss of 2.8dB and match efficiency of 48%.
>>
>> I cannot understand why there is such a discrepency between the design
>> values and tested results (using sig gen, spectrum analyzer and power
>> meter) compared to the MJF-269.
>>
>> Is there something I am doing wrong here or is it a mis-interpretation
>> of displayed values ?
>>
>> Thanks for any help.
>
>

143. Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:00:40 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1136325640.479701.9580@g49g2000cwa.googlegroups.com>
Source record: 65704

Hi de KJ4UO,

I have a MFJ-269 and I measured a value of 65 and j16 for my 6-meter dipole, the dipole is a little long so I assume that the j16 is inductive and I need to add a cap of equal reactive value.
Also, The measurement was taken directly at the antenna feedpoint without any coax.

Once I back calculate the cap value ,should I place this cap across the antenna input at the feed point or in series with the signal line of the feed point to cancel out the j16 and leave me with 65 ohm resistive?

tnx de KJ4UO

144. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:02:21 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <NvCuf.167643$V7.67830@news-server.bigpond.net.au>
Source record: 65705

Tam,

I believe you are correct. The 147nH inductor is the largest "can" that
I have. The inductor really needs to be larger to get the loaded Q of
the match down for this ration of impedance transform.

When trying 50 Ohms to 800 Ohms (instead of the original 4500 Ohms), the
match works. The actual loaded Q was about 8.

Seems a good rule of thumb would be to go for loaded Q around 10% of
unloaded Q.

Thanks

Tam/WB2TT wrote:
> "Amos Keag" <A.K01@comcast.net> wrote in message
> news:96ydncE65IOaCCfeRVn-tw@comcast.com...
>
>>Have you considered that there may be non-linear effects in the test set
>>up?
>>
>>The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
>>Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.
>>
>>AK
>>
>>David wrote:
>>
>>
>>>Hi,
>>>
>>>I have a matching circuit that matches 50 Ohms to 4500 Ohms in parallel
>>>with 2.5pF at 45MHz.
>>>
>>>The coil was measured at 147nH with a Q of 50 at 45 MHz.
>>>
>>>The circuit is a C-Tap typology with following values.
>>>
>>>Tap input to ground = 784pF
>>>Tap to hot side of coil = 92pF
>>>Par inductor = 147nH
>>>
>
>
> These seem like horrendously large capacitors to use at 45 MHz.
>

>
>
>>>My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
>>>
>>>I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
>>>
>>>A 4k7 resistor and 2p2 cap were placed across the output to simulate the
>>>correct load.
>>>
>>>The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
>>>calculated values).
>
>
> For an unloaded Q of 50, I would shoot for a loaded Q of around 5. If you
> plan to put any power through this, try getting the unloaded Q up to around
> 200, with a loaded Q of around 8.
>
> My guess is that if you remove the 4.7K, the impedance at the other end of
> the network will not change all that much.
>
> Tam/WB2TT
>
>

145. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:31:02 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <-sKdncIoFPWBZifenZ2dnUVZ_vidnZ2d@web-ster.com>
Source record: 65706

pdrunen@aol.com wrote:
> Hi de KJ4UO,
>
> I have a MFJ-269 and I measured a value of 65 and j16 for my 6-meter
> dipole, the dipole is a little long so I assume that the j16 is
> inductive and I need to add a cap of equal reactive value.
> Also, The measurement was taken directly at the antenna feedpoint
> without any coax.
>
> Once I back calculate the cap value ,should I place this cap across the
> antenna input at the feed point or in series with the signal line of
> the feed point to cancel out the j16 and leave me with 65 ohm
> resistive?
>
>
> tnx de KJ4UO
>
Adding a cap with 16 ohms reactance in series will bring your impedance
to 65 ohms resistive. Adding a 280 ohm reactance cap in parallel will
cancel the inductance but the resistive component will now be about 69 ohms.

Why not just trim the dipole a bit?

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

146. Re: Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:35:56 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <g%Cuf.5576$nu6.3549@newsread1.news.pas.earthlink.net>
Source record: 65707

W. Watson wrote:

> Roy Lewallen wrote:
>
>> W. Watson wrote:
>>
>>> There's a figure at the bottom of
>>> <http://www.tpub.com/neets/book10/42.htm> that shows current
... snip
> I've seen that diagram on occasion and it has somewhat baffled me, but
> at least now I have some insight into what's going on. The most recent
> occurrence was Carr's fourth edition of "Practical Antennas Handbook".
> These diagrams all appeared out of nowhere as though they were quite
> obvious to the reader. I got the book through Amazon and have about 10
> days on a 30 day period to return it, which I think I will.
> Unfortunately, Carr died a few years ago, so there will be no new
> changes to it.
>
> It is tempting to look at his software CD for the book to see what
> antenna design tools are on it. I think I'll resist the temptation
> though. It would be interesting to know what some sort of total package
> looked like. I'm curious if there's some general design tool, or it's
> just a bunch of programs for different antennas. It would be interesting
> to know if one can start from some general set of requirements and the
> program would lead the designed to the appropriate design.

How about that? I read further into the book and found a whole chapter on the software on the CD. Another quick romp through the book tells me that (I'm inferring this.) that what most of it is about is describing antennas and where they might be used. It looks like a potential catalog of such designs to try out on the software. I don't think that's necessarily the reason why the book was written, but it makes it appealing. I don't see anywhere that all the designs offered could be investigated with the software on the CD.

Roy, perhaps you have an answer for the last statement. I see that one of your programs is included.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

147. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:47:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <I9Duf.43580$BZ5.16418@newssvr13.news.prodigy.com>
Source record: 65708

pdrunen@aol.com wrote:
> I have a MFJ-269 and I measured a value of 65 and j16 for my 6-meter
> dipole, the dipole is a little long so I assume that the j16 is
> inductive and I need to add a cap of equal reactive value.
> Also, The measurement was taken directly at the antenna feedpoint
> without any coax.

How did you keep your body from affecting the measurement?
Why do you think an SWR of 1.5:1 is enough to worry about?

> Once I back calculate the cap value ,should I place this cap across the
> antenna input at the feed point or in series with the signal line of
> the feed point to cancel out the j16 and leave me with 65 ohm
> resistive?

The impedance displayed by the MFJ-269 is a series impedance.
If the feedpoint impedance is indeed 65+j16, two caps of -j8,
one to each side of the dipole on the antenna side of a 1:1
choke-balun will tend to keep the currents balanced.

But here's another approach for your consideration. A little
less than 1/2WL of 300 ohm or 450 ohm line will bring the antenna
to resonance, assuming a 65+j16 feedpoint impedance. That's about
8.5 feet on 6m. A series section of ladder-line is usually easier
to install than discrete components. And if you did make an error
in your measurement, trimming the ladder-line to resonance is a
pretty easy task.
--
73, Cecil http://www.qsl.net/w5dxp

148. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 22:53:02 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrndrm02e.30so.bit-bucket@shell.config.com>
Source record: 65709

On Tue, 03 Jan 2006 13:01:32 -0600, Chris W wrote:
> Dave Oldridge wrote:
>>Allodoxaphobia <bit-bucket@config.com> wrote:
>>>On Mon, 02 Jan 2006 14:33:18 GMT, Dave Oldridge wrote:
>>>>Chris W <1qazse4@cox.net> wrote:
>>>>
>>>>>I want to put a short 2 meter yagi and a long 70cm yagi on the same
>>>>>vertical mast. The 70cm will be a horizontally polarized, center
>>>>>mounted 17' boom and the 2 meter will be a vertically polarized, end
>>>>>mounted 6 foot boom. How far apart do they need to be? I will only
>>>>>be transmitting with one at a time but one could be receiving and
>>>>>the other transmitting, the 70cm will be for ATV receive only for
>>>>>now.
>>>>>
>>>>A good rule of thumb is to separate them by at least a half-wave at
>>>>the lowest frequency. In this case that means about a meter (39")
>>>>apart.
>>>>
>>>Not when they are orthogonally polarized. They can be 0.000
>>>wavelengths apart. I.e., in the OP's case, the 2M elements can be
>>>_mounted_ on the 70cm's boom.
>>
>>You're right. I didn't catch the polarization thing. In fact, building
>>them on the same boom would be quite workable.
>>
> What if they are 2 different antennas and you can't put them on the same
> boom, how close can I put them?

OK, if we're still talking about one vertically polarized and one
horizontally polarized, I'd slap'em together so that the vertical
elements are at least 1/4 wavelength from the horizontal's boom.

Or, you could do what some fellers seem to do: Spend all your time in
rraa, anguishing and arguing about antenna installation choices. After
all, which propagates best: The antenna on the floor of the garage, or the
one up in the air? HI!HI!

JONESY'S AXIOM:
You never put an antenna up just once.

Good Luck and Happy New Year!
73
Jonesy
--
Marvin L Jones | jonz | W3DHJ | linux

```
Pueblo, Colorado | @ | Jonesy | OS/2 __
38.24N 104.55W | config.com | DM78rf | SK
```

149. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 23:14:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rm19vhgq87647@corp.supernews.com>
Source record: 65710

pdrunen@aol.com wrote:
> Hi de KJ4UO,
>
> I have a MFJ-269 and I measured a value of 65 and j16 for my 6-meter
> dipole, the dipole is a little long so I assume that the j16 is
> inductive and I need to add a cap of equal reactive value.
> Also, The measurement was taken directly at the antenna feedpoint
> without any coax.
>
> Once I back calculate the cap value ,should I place this cap across the
> antenna input at the feed point or in series with the signal line of
> the feed point to cancel out the j16 and leave me with 65 ohm
> resistive?

There's no point in adding a capacitor at all. Assuming you're using a 50 ohm feedline, it would only change the SWR from about 1.5 to 1.3. I can't see where that would be worth the trouble.

But you haven't measured the dipole impedance. One terminal of the MFJ-269 is connected to one side of the dipole. The other terminal is connected to the dipole in parallel with the outside of the MFJ-269 itself and, if you were holding it, your body also. So you're measuring the impedance of an antenna having a wire for one leg, and a combination of a wire, box, and body for the other.

If you really had measured the dipole impedance and if the reactance was enough to bother with, the answer to your question would be to put it in series.

Roy Lewallen, W7EL

150. Re: Why use s balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 23:16:02 UTC
From: Registered User <n4jvp@ix.netcom.com>
Message-ID: <go0mr1t3rksa95uvsfijgpcocc4vebrj9u@4ax.com>
Source record: 65712

On Mon, 02 Jan 2006 10:20:30 -0800, Dan Richardson <> wrote:

>On Mon, 2 Jan 2006 14:56:49 +0000 (UTC), "Reg Edwards"
><g4fgq.regp@ZZZbtinternet.com> wrote:
>
>>Why use a balanced tuner when a less expensive, easier to operate,
>>unbalanced tuner, in conjunction with a simple choke-balun, will do
>>just as well?
>>
>>Insert the 2-wire choke-balun between the unbalanced tuner and the
>>balanced transmission line.
>>----
>>Reg.
>>
>
>My link coupled tuner (Johnson Matchbox) cost me less than 60 USD, I
>can tuner faster than a T-type tuner, doesn't need nor use a balun.
>(Read one less component and its associated loss). So why would I want
>to replace it with something that works almost as good?
>
I use my 500+ foot horizontal loop on 6 and 2 meters with homebrew
balanced tuners from the '63 ARRL Handbook. On HF a balanced double-L
tuner does the trick. The balanced-L tuner does use a balun but it is
between the rig and the matching device. The only problem with using
the Johnson Matchbox is 30M

73 de n4jvp
Fritz

151. Re: Current and voltage distribution on an antenna.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 23:23:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rm1s9q3tbhj43@corp.supernews.com>
Source record: 65711

W. Watson wrote:
>
> How about that? I read further into the book and found a whole chapter
> on the software on the CD. Another quick romp through the book tells me
> that (I'm inferring this.) that what most of it is about is describing
> antennas and where they might be used. It looks like a potential catalog
> of such designs to try out on the software. I don't think that's
> necessarily the reason why the book was written, but it makes it
> appealing. I don't see anywhere that all the designs offered could be
> investigated with the software on the CD.
>
> Roy, perhaps you have an answer for the last statement. I see that one
> of your programs is included.

Sorry, I know nothing of the book, except I vaguely recall Joe
mentioning that he was including the EZNEC demo program with a book.

If you're interested in modeling various antenna designs, consider the
ARRL Antenna Book. On its CD are several hundred EZNEC models of
various antennas discussed in the book, plus a special version of EZNEC
which can be used to analyze them (http://eznec.com/eznec_arrl.htm). The
Antenna Book models can also be used with any standard (non-demo)
version of EZNEC.

Roy Lewallen, W7EL

152. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-03 23:49:12 UTC
From: Joe McElvenney <ximac@btinternet.com>
Message-ID: <7n1mr1tcjlt8gk6ogu1dknslu6es5l4b8c@4ax.com>
Source record: 65713

David,

With an MFJ-259B I just ran a test using an air-wound coil resonating with a series combination of 820pF and 100pF at about 44MHz, all strapped across a 4.7K resistor. The figures came out as follows -

Inductor (calculated) = 146nH

Real part of Zin (with 4.7k) = 14 ohms (tuned for X = 0)

With perfect components, and the capacitor tap chosen, this should have been 55 ohms. Disconnecting the 4.7k (again tuned for X = 0) the real part of Zin increased to 20 ohms. This, if my maths are correct, means the inductor's equivalent shunt loss resistance was about 1.6K giving an inductor Q of around 40.

Due to the similarity of component values used, these then are the sort of figures you should have obtained. Obviously the limiting factor here is the circuit Q but I supposed you had intentionally chosen this to meet a specific bandwidth target.

Cheers - Joe

153. Antron 99 SWR problems - help me with this strange set up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 00:30:28 UTC
From: jimbradley@gmail.com
Message-ID: <1136334628.844041.33350@g44g2000cwa.googlegroups.com>
Source record: 65714

I bought a used A99 a figured I would give it to my brother to put up in his attic. so he monted the antenna on a PVC mast that he made in the 20' tall attic. It was a 1.5 (SWR) 1 & 40. My father decided to play with it and now it is showing infinity on both 1 & 40 turning the rings changes little it never drops below 3.0. can someone tell me the correct way to tune the antenna (this way I can make sure I am doing everything right) also does the antenna need to be grounded by anything other then coax (ie a ground strap to cold water pipe or something alont them lines)... please help

154. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 00:31:11 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <jHEuf.1890$ZA2.483@newsread1.news.atl.earthlink.net>
Source record: 65715

"Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message
news:Xns973F42AD4851doldridgsprintca@64.59.135.159...
> Chris W <1qazse4@cox.net> wrote in news:IT3tf.45644$ih5.19066@dukeread11:
>
> > I want to put a short 2 meter yagi and a long 70cm yagi on the same
> > vertical mast. The 70cm will be a horizontally polarized, center
> > mounted 17' boom and the 2 meter will be a vertically polarized, end
> > mounted 6 foot boom. How far apart do they need to be? I will only be
> > transmitting with one at a time but one could be receiving and the other
> > transmitting, the 70cm will be for ATV receive only for now.
>
> A good rule of thumb is to separate them by at least a half-wave at the
> lowest frequency. In this case that means about a meter (39") apart.
>
>
Sofar all the answers are assuming the question is will one antenna affect
the other antenna. One other thing to look at is will the transmitter
'kill' the receiver of the other rig ?

155. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 00:44:22 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1136335461.975240.53730@g47g2000cwa.googlegroups.com>
Source record: 65716

Roy quite reasonably wrote, "If you really had measured the dipole impedance and if the reactance was enough to bother with, the answer to your question would be to put it in series."

You can instead put capacitance in parallel with the nominal 65+j16 (if that's what it is) to make it non-reactive, though doing so will raise the resistive impedance, and thus not improve the SWR rel. to 50 ohms as much as series capacitance (a pair of balanced caps...). But if you increase the shunt capacitance beyond what's needed to cancel the reactance, and then add series inductance, you can get to a "perfect" match to 50 ohms. (There are, in general, many ways to match one impedance to another, by using various combinations of inductance, capacitance, transmission line stubs and transmission line series sections.)

But first beware of the pitfalls Roy mentioned, and understand if you really need additional matching.

Cheers,
Tom

156. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 00:59:13 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bb1dfe$0$3759$39cecf19@news.twtelecom.net>
Source record: 65717

Richard Harrison wrote:

> Dave wrote:
> "What would your recommendation be?"
>
> I would use a vertical collinear omni antenna for the repeater and
> vertically polarized Yagis for each of the "sheds". To avoid stimulation
> of argument, I`ll say no more. You mainly need a line-of-sight path at
> 915 MHz between all remote sites and the repeater.
>
> Best regards, Richard Harrison, KB5WZI
>

Motorola 900 Mhz Canopys are advertised as "non line of site", so you
may get more mileage than you'd expect when running at this relatively
low frequency. If you are looking at paths that can be well defined,
try a program called "Radio Mobile" for a very good simulation of the
situation. It is freeware, and the databases it uses are also free
(courtesy of the US taxpayer and some hardworking US Shuttle astronauts
and groundcrew).

tom
K0TAR

157. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 01:17:46 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpf7np$1d5$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65718

Try suspending the measuring instrument in mid-air to remove your body
capacitance and see if it makes any difference to the measured
impedance.

Reg

158. Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 01:30:59 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <nzFuf.167791$V7.17075@news-server.bigpond.net.au>
Source record: 65719

Hi,

I have a design for a Yagi antenna at 436MHz and would like to scale it to 921 MHz. The calculations I used from the understanding I have obtained from reading various articles appears below.

Would someone be kind enough to advise me if this procedure and values look correct ?

Thanks in advance.

The original dimensions(mm) were

Boom = 15 or 20mm square aluminum, 350mm long

Element Length Spacing Diameter
RE 336 0 8
DE 316 80 10
D1 300 190 8
D2 292 330 8

My scaled values to 921MHz
Boom = 12mm x 12mm aluminum 166mm long

Element Length Spacing Diameter
RE 158.9 0 3.78
DE 149.5 38 4.73
D1 141.9 90 3.78
D2 138.2 142 3.78

Now I scaled the tubing to 6mm diameter that I have in stock
Element Length Spacing Diameter
RE 158.5 0 6
DE 148.7 38 6
D1 139.4 90 6
D2 135.3 142 6

Regards

David Huisman

159. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 02:05:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rmbaoo5n5tk1f@corp.supernews.com>
Source record: 65720

Reg Edwards wrote:
> Try suspending the measuring instrument in mid-air to remove your body
> capacitance and see if it makes any difference to the measured
> impedance.

Suspending the analyzer might be adequate for 6 meters, which is the antenna under discussion. But I should mention for the benefit of the general audience that it isn't adequate for 2 meters. Not too long ago I heard from an EZNEC user who found a substantial difference between modeled and measured results from a simple antenna. On my suggestion, he added a simple wire frame representation of the MFJ 269 to his model, and it made the model results much closer to his measurement. So in that case the antenna analyzer itself was enough to substantially skew the measurement.

Roy Lewallen, W7EL

160. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 02:17:34 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bb303e$0$47666$39cecf19@news.twtelecom.net>
Source record: 65721

David wrote:

> Hi,
>
> I have a design for a Yagi antenna at 436MHz and would like to scale it
> to 921 MHz. The calculations I used from the understanding I have
> obtained from reading various articles appears below.
>
> Would someone be kind enough to advise me if this procedure and values
> look correct ?
>
> Thanks in advance.
>
> The original dimensions(mm) were
>
> Boom = 15 or 20mm square aluminum, 350mm long
>
> Element Length Spacing Diameter
> RE 336 0 8
> DE 316 80 10
> D1 300 190 8
> D2 292 330 8
>
> My scaled values to 921MHz
> Boom = 12mm x 12mm aluminum 166mm long
>
> Element Length Spacing Diameter
> RE 158.9 0 3.78
> DE 149.5 38 4.73
> D1 141.9 90 3.78
> D2 138.2 142 3.78
>
> Now I scaled the tubing to 6mm diameter that I have in stock
> Element Length Spacing Diameter
> RE 158.5 0 6
> DE 148.7 38 6
> D1 139.4 90 6
> D2 135.3 142 6
>
> Regards
>
> David Huisman

Are these through the boom, and if so, insulated, or uninsulated?

If not through the boom, give specifics on the mounting.

Please do this for both the original antenna, and how you propose to build the scaled one.

tom
K0TAR

161. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 02:33:21 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <RtGuf.168152$V7.71222@news-server.bigpond.net.au>
Source record: 65722

The elements are mounted approximately 3mm off the boom by nylon
insulator blocks on the original design.

The scaled design will use same construction.
http://www.qsl.net/dk7zb/start1.htm

Tom Ring wrote:
> David wrote:
>
>> Hi,
>>
>> I have a design for a Yagi antenna at 436MHz and would like to scale
>> it to 921 MHz. The calculations I used from the understanding I have
>> obtained from reading various articles appears below.
>>
>> Would someone be kind enough to advise me if this procedure and values
>> look correct ?
>>
>> Thanks in advance.
>>
>> The original dimensions(mm) were
>>
>> Boom = 15 or 20mm square aluminum, 350mm long
>>
>> Element Length Spacing Diameter
>> RE 336 0 8
>> DE 316 80 10
>> D1 300 190 8
>> D2 292 330 8
>>
>> My scaled values to 921MHz
>> Boom = 12mm x 12mm aluminum 166mm long
>>
>> Element Length Spacing Diameter
>> RE 158.9 0 3.78
>> DE 149.5 38 4.73
>> D1 141.9 90 3.78
>> D2 138.2 142 3.78
>>
>> Now I scaled the tubing to 6mm diameter that I have in stock
>> Element Length Spacing Diameter
>> RE 158.5 0 6
>> DE 148.7 38 6
>> D1 139.4 90 6
>> D2 135.3 142 6

>>
>> Regards
>>
>> David Huisman
>
>
> Are these through the boom, and if so, insulated, or uninsulated?
>
> If not through the boom, give specifics on the mounting.
>
> Please do this for both the original antenna, and how you propose to
> build the scaled one.
>
> tom
> K0TAR

--

Kind Regards

David Huisman
General Manager

ORBIT COMMUNICATIONS Pty Ltd - Wireless Solutions that Work
(Telemetry, Control, Monitoring, Security, HVAC ...)
A.C.N. 107 441 869

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NSW 2263, AUSTRALIA
Phone: 61-2-4393-3627
Fax : 61-2-4393-3685
Mobile: 61-413-715-986

162. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 02:41:27 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1136342487.677697.284680@o13g2000cwo.googlegroups.com>
Source record: 65723

Reg wrote, "Try suspending the measuring instrument in mid-air to remove your body capacitance and see if it makes any difference to the measured impedance."

Even better (perhaps), set up the antenna as you plan to use it, including balun and feedline. Make your measurements at the "other" (non-antenna) end of the feedline. Back out the effects of that length of feedline, and you have the antenna feedpoint impedance in that particular environment. If the line is reasonably long so you and your measurement device are at least a couple wavelengths from the antenna, and reasonably well decoupled from the antenna so that there isn't a lot of "antenna current" on the feedline, your measurements should be essentially independent of your presence and the presence of the analyzer.

Cheers,
Tom

163. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:05:59 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bb3bb0$0$3767$39cecf19@news.twtelecom.net>
Source record: 65724

David wrote:

> The elements are mounted approximately 3mm off the boom by nylon
> insulator blocks on the original design.
>
> The scaled design will use same construction.
> http://www.qsl.net/dk7zb/start1.htm
>

Ok, I'll try to run a scaled version for you in the next one or two days.

tom
K0TAR

164. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:27:49 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <VgHuf.168611$V7.39050@news-server.bigpond.net.au>
Source record: 65725

Thanks Tom.

The smallest aluminum I have is 12mm square for the boom and 6mm round
for elements. I would like to stick with the aluminum rod as I think
this will be easier to secure than welding rod etc.

Tom Ring wrote:
> David wrote:
>
>> The elements are mounted approximately 3mm off the boom by nylon
>> insulator blocks on the original design.
>>
>> The scaled design will use same construction.
>> http://www.qsl.net/dk7zb/start1.htm
>>
>
> Ok, I'll try to run a scaled version for you in the next one or two days.
>
> tom
> K0TAR

165. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:29:39 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1136345379.117923.137090@o13g2000cwo.googlegroups.com>
Source record: 65626

Hi again all,

the dipole was suspensed on a pole and the MFJ-269 was connected to it, no body effects here. After adjusting frequency then I move away from the setup.

I do understand that 65 + j16 is not really a bad match, if I did add a capacitive reactance, then would I have to place two caps, each of equal value in series with coax?

If I wanted to do a shunt capacitor, would I find the admittance of the above and then determine a shunt from the resulting reactance?

de KJ4UO

166. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:29:43 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1136345383.584913.264850@g49g2000cwa.googlegroups.com>
Source record: 65627

Hi again all,

the dipole was suspensed on a pole and the MFJ-269 was connected to it, no body effects here. After adjusting frequency then I move away from the setup.

I do understand that 65 + j16 is not really a bad match, if I did add a capacitive reactance, then would I have to place two caps, each of equal value in series with coax?

If I wanted to do a shunt capacitor, would I find the admittance of the above and then determine a shunt from the resulting reactance?

de KJ4UO

167. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:29:43 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1136345383.827759.119530@g47g2000cwa.googlegroups.com>
Source record: 65628

Hi again all,

the dipole was suspensed on a pole and the MFJ-269 was connected to it, no body effects here. After adjusting frequency then I move away from the setup.

I do understand that 65 + j16 is not really a bad match, if I did add a capacitive reactance, then would I have to place two caps, each of equal value in series with coax?

If I wanted to do a shunt capacitor, would I find the admittance of the above and then determine a shunt from the resulting reactance?

de KJ4UO

168. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 03:38:51 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpfg0brfq1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65629

The Autec Analyser is a better instrument than the MFJ for
suspended-in-mid-air measurements. It is much smaller and is lighter
in weight and has a smaller capacitance.

The Autec case has a self-capacitance of the order of 3 pF
corresponding to a reactance of 1768 ohms at 30 MHz which can be
ignored when measuring 50 ohms with zero lead length.

The Autec's highest frequency is 35 MHz.

The MFJ's highest frequency is at VHF. With a self-capacitance of 7
pF at VHF substantial errors can occur.

To estimate capacitance, the DC capacitance of a sphere is -

pF = 55.55 * Diameter in metres.

Reg.

169. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 04:03:08 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1136345393.622949.34840@g43g2000cwa.googlegroups.com>
Source record: 65630

Hi again all,

the dipole was suspensed on a pole and the MFJ-269 was connected to it, no body effects here. After adjusting frequency then I move away from the setup.

I do understand that 65 + j16 is not really a bad match, if I did add a capacitive reactance, then would I have to place two caps, each of equal value in series with coax?

If I wanted to do a shunt capacitor, would I find the admittance of the above and then determine a shunt from the resulting reactance?

de KJ4UO

170. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 04:23:39 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <f5luf.168971$V7.90349@news-server.bigpond.net.au>
Source record: 65631

Are these antennas all in parallel for have you posted the identical
request multiple times ?

pdrunen@aol.com wrote:
> Hi again all,
>
> the dipole was suspensed on a pole and the MFJ-269 was connected to it,
> no body effects here. After adjusting frequency then I move away from
> the setup.
>
> I do understand that 65 + j16 is not really a bad match, if I did add a
> capacitive reactance, then would I have to place two caps, each of
> equal value in series with coax?
>
> If I wanted to do a shunt capacitor, would I find the admittance of the
> above and then determine a shunt from the resulting reactance?
>
> de KJ4UO
>

171. Re: Harry E. Landsberg, Jr., CIA Maltese Falcon: Kennedy assassination, IRAN/CONTRA, UFO's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 05:34:18 UTC
From: Laura <lhann10243@earthlink.net>
Message-ID: <1136352858.118623.314270@g14g2000cwa.googlegroups.com>
Source record: 65632

Vanessa Redgrave, Conchita Llach, Carla Ross-Robertson are in line with Mr. Landsberg (Maltese Falcon.)

Conchita Llach: LLach Jewelers, Miami, FL, frequent trips to Guatemala, home (coffee plantations) in San Salvador, El Salvador, father liaison to the Vatican for El Salvador (or for San Salvador, El Salvador.)

Carla Ross-Robertson married to British Intelligence (Jim Robertson.) They perfect mind control techniques using handicapped children in the state of Virginia.

These people supervised the torture of 800,000,000 infants to end God.

The United States, satanic, has been in communication/trade with the Dog Star System, the Plieades, Saturn, Pluto, Mercury and Venus (and possibly just outside the Milky Way.)

Bonnie, from Mercury, supervises mind control for that world.

John (former Apostle) supervises mind control for Venus. He has worked with actor Bill Murray (DOD, civilian military) on a virtual reality program, "the ritual abuse experience."

Michael, former Archangel, is in contact with the Saturnians.

Please see:

"Mossad and the United States secret government"
http://home.earthlink.net/~sammark4/id175.html

"John is here"
http://home.earthlink.net/~sammark4/id160.html

"re Whitley Strieber, spiritual matters"
http://home.earthlink.net/~sammark4/id194.html

"This person might be impersonating me"
http://home.earthlink.net/~lhann10243/id78.html

Lisa Nicholson is affiliated with Wackenhut and is Vanessa Redgrave's associate in the United States.

"I'm involved in BCCI." -- Lisa

Lisa Nicholson
5013 Paprika Ln.

Palm Beach Gardens, FL 33418
(561) 775-7852
cell (561) 307-2963

Her mother (Betty Nicholson) is a real estate agent in Miami and close friends with Don Shula.

Harry's daughter Mary is involved in the mind control of children in Tampa, FL.

Mary Landsberg
221 W. Knollwood St.
Tampa, FL 33604-6033
(813) 236-8207

She says at MacDill Air Force Base:

http://public.macdill.amc.af.mil/

His son John admits to being a vicious mind controller of children.

John R. Landsberg
4040 W. 124th Ter.
Leawood, KS 66209-2231
(913) 345-1649

Dr. Nisha Chandra is that (Maltese Falcon) for India. Photo:

http://www.angelfire.com/journal2/landsbergphotos2/dr_nisha_chandra.jpg

---

Laura

172. Re: using an HP 8405A to measure SWR - update

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 05:52:07 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <dsednbyDEu0W_ybenZ2dnUVZ_sGdnZ2d@comcast.com>
Source record: 65633

Thanks,

I went back through the calibration procedure.

1. The meter appears to be performing as it is supposed to. The 'static readings work repeatably and predictably. With a balanced configuration shorts and opens read correctly.

2. The pad I was using appears to have a frequency shift. With the 'legs balanced for length' the measurement would change with frequency. This really confused the measurement process. I put it aside.

3. I have some 23 Ohm couplers. These of course confuse readings when used as normal couplers. However if they are used in a truly balanced configuration - that is the legs are configured as close to identical as possible then they appear to work.

I am going to shelve this until I find or make a 50 Ohm bi-directional coupler.

Thanks again - Dan

Owen Duffy wrote:
> On Mon, 02 Jan 2006 16:10:02 -0800, dansawyeror
> <dansawyeror@comcast.net> wrote:
>
>
>>The coupler measures
>>about -14 dbm.
>
>
> What does this mean? Are you trying to tell us that the power on the
> coupler port is 14dB less than the through power? What has dBm got to
> do with it?
>
> You didn't report the power in the coupler port with a s/c and / or
> o/c at the measurement plane. Did you perform this cal?
>
>
>>(The phase angle and reflected ware very touchy. It was almost impossible to
>>adjust by changing frequency. It was easier to 'adjust' it by sitting very still
>>and moving my arm.)
>
>
> That is understandable. How much coax between the A probe and the
> load, and the B probe and the load... how many degress does this total
> electrical length change for a 1% change in frequency? Does that

> explain some of the phase sensitivity?
>
>
>>The antenna is a copy from the ARRL handbook. It is a 4 inch segment, a 1 inch
>>long by 3/4 inch diameter 5 turn coil, and a 4 inch tip. It is mounted over a 2
>>foot square aluminum plate. This antenna should have an input impedance less
>>then 20 Ohms.
>
>
> Don't you need to measure some "known" loads. Why not try a 50 ohm
> load tee'd to a s/c stub (quarter wave at a known frequency) and see
> if you get the predictable results at different frequencies around
> resonance. Then try two 50 ohm loads in parallel with the stub. (339mm
> of RG58C/U should have a Z of around 6000+j0 ohms at around 146MHz, at
> half that frequency it should be 0.85+j50, etc...
>
>
>>How can it measure very close to 50 Ohms? Is there something wrong with this
>>analysis?
>
>
> See if you can trust your measurements on known loads before wondering
> why the unknown load isn't what you expect when using unknown
> measurement technology... too many unknowns.
>
> Owen
> --

173. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 07:34:56 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <gZkv6WCgq3uDFACB@ifwtech.co.uk>
Source record: 65634

David wrote:
>Hi,
>
>I have a design for a Yagi antenna at 436MHz and would like to scale it
>to 921 MHz. The calculations I used from the understanding I have
>obtained from reading various articles appears below.
>
>Would someone be kind enough to advise me if this procedure and values
>look correct ?
[...]
>
>Regards
>
>David Huisman

The basic principle of scaling antennas according to wavelength is that you must make an *exact* scale model. That means scaling every dimension, and not adding any new or different 'features'.

Often that isn't practical for mechanical engineering reasons, so then you need to apply corrections. However, you should still aim to keep those corrections as small as possible. For example, simple scaling is likely to produce odd, unavailable values for the element diameter, so it's OK to use corrections to change to the nearest commercially available diameter. But if you also decide to double the diameter, the correction is more risky - you're entering the territory of a completely new design.

Sorry that I don't have time to check your particular dimensions in detail, David, but you can find resources for scaling and constructional techniques on my 'VHF/UHF Long Yagi Workshop' pages. There is a downloadable program which leads you through the relevant questions, and also a link to an online Javascript version.

(From about 1200utc I will not have access to this newsgroup for the next few days, so I hope the above will keep you going.)

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

174. Re: Why ground the transmitter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 07:53:32 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <vlvmr1lh0mdkd75211cqn3bkbbkqi4dom3@4ax.com>
Source record: 65635

ORIGINAL MESSAGE:

On Mon, 02 Jan 2006 23:19:15 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

> But a better solution is to
>get those feedline currents balanced so you won't have any imbalance or
>"ground" current to deal with in the first place.

~~~~~~

Not only that, but whenever the neighbor plugs in a different
appliance, uses an extension cord or otherwise rearranges his AC
mains, your problem may be right back.

73, Bill W6WRT
~~~~~~

175. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 08:16:05 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <9vLuf.169769$V7.114119@news-server.bigpond.net.au>
Source record: 65636

Ian,

Thanks for that.

I did previously look at your site and bookmarked it. I am going to make up the element cutting jig and bending jig (for when I want to experiment with folded dipoles).

Great site.

Regards

David

Ian White GM3SEK wrote:
> David wrote:
>
>> Hi,
>>
>> I have a design for a Yagi antenna at 436MHz and would like to scale
>> it to 921 MHz. The calculations I used from the understanding I have
>> obtained from reading various articles appears below.
>>
>> Would someone be kind enough to advise me if this procedure and values
>> look correct ?
>
> [...]
>
>>
>> Regards
>>
>> David Huisman
>
>
>
> The basic principle of scaling antennas according to wavelength is that
> you must make an *exact* scale model. That means scaling every
> dimension, and not adding any new or different 'features'.
>
> Often that isn't practical for mechanical engineering reasons, so then
> you need to apply corrections. However, you should still aim to keep
> those corrections as small as possible. For example, simple scaling is
> likely to produce odd, unavailable values for the element diameter, so
> it's OK to use corrections to change to the nearest commercially
> available diameter. But if you also decide to double the diameter, the
> correction is more risky - you're entering the territory of a completely

> new design.
>
> Sorry that I don't have time to check your particular dimensions in
> detail, David, but you can find resources for scaling and constructional
> techniques on my 'VHF/UHF Long Yagi Workshop' pages. There is a
> downloadable program which leads you through the relevant questions, and
> also a link to an online Javascript version.
>
> (From about 1200utc I will not have access to this newsgroup for the
> next few days, so I hope the above will keep you going.)
>
>

176. Re: Why use a balanced tuner?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 12:16:34 UTC
From: David J Windisch <davidjw@cinci.rr.com>
Message-ID: <C0Puf.718$aM4.475@tornado.ohiordc.rr.com>
Source record: 65637

Put a 500-pF variable capacitor in series with the link inside or, outside
the enclosure in series with the center conductor of the coax line feeding
the JMBox. Gives you an extra degree of freedom in tuning.
73, Dave, N3HE

SNIP
> between the rig and the matching device. The only problem with using
> the Johnson Matchbox is 30M
>
> 73 de n4jvp
> Fritz

177. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 15:23:19 UTC
From: richardharrison@webtv.net
Message-ID: <25145-43BBE867-1164@storefull-3255.bay.webtv.net>
Source record: 65638

Tom Ring wrote:
"Motorola 900 MHz Canopys are advertised as "non line of sight"... so you may get more mileage than you`d expect when running at the relatively low frequency."

It`s true that radio does not always take a direct path. Part of ham radio fun is in anomalous propagation. It`s also true that the higher the frequency, the smaller the obstruction that can block propagation.

900 MHz is more reliable than frequencies in the GHz. A point to multipoint system may require more reliability than a single point to point system, and more reliability than: "Can You believe it? I`ve contacted DX!" I`ve engineered and installed several 900 MHz systems which proved to provide, with their path clearances and fade margins, 24-7 reliability of very nearly 100%.

Line of sight is defined as: "The distance to the horizon from an elevated point, including the effects of atmospheric refraction." Another definition is: "The propagation characteristic of microwave radio."

900 MHz is on the border between UHF and microwaves. It shares some of the characteristics of both.

Best regards, Richard Harrison, KB5WZI

178. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 17:40:09 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <bsKdnbCSRrn3lSHeRVn-iw@comcast.com>
Source record: 65639

"David" <webreply@orbitcoms.com> wrote in message
news:NvCuf.167643$V7.67830@news-server.bigpond.net.au...
> Tam,
>
> I believe you are correct. The 147nH inductor is the largest "can" that I
> have. The inductor really needs to be larger to get the loaded Q of the
> match down for this ration of impedance transform.
>
> When trying 50 Ohms to 800 Ohms (instead of the original 4500 Ohms), the
> match works. The actual loaded Q was about 8.
>
> Seems a good rule of thumb would be to go for loaded Q around 10% of
> unloaded Q.
>
> Thanks
>
David,

The inductor loss is (LoadedQ)/(UnloadedQ). So for your numbers of 26 and 50, the loss will be 0.52, or about 3 DB. I think you will want to look at a different configuration. Either something that puts a very small cap in series with the 4500w||2.5PF, or go for something like a 2 uH inductor in parallel with it. At 45 MHz you need an LC product of 12.5 to resonate; this will then be inductive. Tune and match off a tap of the inductor with 2 capacitors.

Tam

179. Re: Impedance question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 18:32:24 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1136399544.772287.13190@o13g2000cwo.googlegroups.com>
Source record: 65640

To keep things balanced, it would be best to split the series capacitance into two parts. They should be -j32 ohms each, as they are effectively in series: 200pF (or 180 or 220) in each leg. It wouldn't be the end of your world if you used a single 100pF cap, though.

Yes; convert to admittance and parallel a capacitive suseptance to cancel the reactive part, about 11pF. Or as I suggested before, put more capacitance in parallel with the feedpoint and add series inductance: 38pF shunt and a pair of 47nH inductors, one in series with each leg between the feedpoint and the feedline, will get you very close to 50 ohms resistive from the stated 65+j16 at 50-54MHz. (I assume the antenna doesn't stay at that impedance over the whole band, though.)

Cheers,
Tom

180. Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 18:49:07 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <DMUuf.870$WY5.314@newsread2.news.pas.earthlink.net>
Source record: 65641

It seems reasonable that if I have an open ended transmission line that the current would reflect back and change phase. After all, the electrons at the end have nowhere to go but back down the line. However, the voltage is a different matter. There is no phase reversal (or polarization change) There doesn't seem to be an intuitive reason for this. However, if one examines the equations for current and capacitive voltage, then it falls out of the math. Still, where is the non-math that indicates this is true?

Now suppose instead the line is short circuited. The voltage returns down the line, and the current does not. In this case, there doesn't seem to be any non-math or intuitive feel for why the short should cause this--either for voltage or current. Can one clue me in on what's really happening above (voltage) and here (voltage and current)? Inquiring minds want to know.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

181. Reflectometer measurements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 20:10:26 UTC
From: Wes Stewart <*n7ws*@yahoo.com>
Message-ID: <hlaor1d522si1ampkm3mh5imqjtf3ou9o8@4ax.com>
Source record: 65642

In light of recent discussions about using an HP 8405 VVM, etc to make impedance measurements, and thanks to Danny, K6MHE, for the storage space, I have placed a couple of references that might be of interest at:

http://www.k6mhe.com/n7ws/

See numbers 8 and 9.

182. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 21:35:40 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dreor19nl2hshh37m1dlt6utj33f7mhink@4ax.com>
Source record: 65643

On Tue, 03 Jan 2006 08:25:48 -0700, Wes Stewart <n7ws*@*yahoo.com>
wrote:

>Owen
>
>Let me pick a nit or two.

...

Firstly, thanks for posting AN 77-3, it is a long time since I read it, and have little recollection of the recommended low frequency test setup.

The HP 11549A is described as a power splitter, so I am guessing that it is some kind of hybrid (ie as in hybrid transformer) that in that role, whilst splitting the power to the "output" ports, will prevent power flow between "output" ports, so isolating the A probe to some extent from the reflected wave on the unknown load side.

Additionally, the 8491 attenuator in the load path will improve the return loss at the B side 11549A port, so that combination seems to be stabilising the loads presented to the splitter (which if it is a hybrid, improves is cross port isolation), and improving the RL by the action of the attenuator and splitter.

Without knowing the loss in the 8491 (I know they were available in 10dB, but I think there were -3, -6, -10 and -20s), or the isolation across the splitter, it is hard to quantify the total isolation of reflected wave from the A probe.

It may be that Dan should consider constructing a hybrid or Return Loss Bridge, whatever you want to call it, it will be cheaper and have less loss that a dual directional coupler for HF measurements. IIRC, the ARRL has some simple designs.

Owen
--

183. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 21:45:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11roggi5f4i1h3a@corp.supernews.com>
Source record: 65644

W. Watson wrote:
> It seems reasonable that if I have an open ended transmission line that
> the current would reflect back and change phase. After all, the
> electrons at the end have nowhere to go but back down the line. However,
> the voltage is a different matter. There is no phase reversal (or
> polarization change) There doesn't seem to be an intuitive reason for
> this. However, if one examines the equations for current and capacitive
> voltage, then it falls out of the math. Still, where is the non-math
> that indicates this is true?
>
> Now suppose instead the line is short circuited. The voltage returns
> down the line, and the current does not.

That's not true. Both are totally reflected.

> In this case, there doesn't
> seem to be any non-math or intuitive feel for why the short should cause
> this--either for voltage or current. Can one clue me in on what's really
> happening above (voltage) and here (voltage and current)? Inquiring
> minds want to know.

The math is dictated by the boundary conditions, and those can be used to gain an intuitive feel for what's happening. When both forward and reflected waves are present, the voltage and current at any point on the line are the sum of the forward and reverse waves. When the line is open circuited, the current at the end of the line is of course zero. So the sum of the forward and reverse current wave is zero at the end, and the only way that can be is for the forward and reverse waves to be equal in magnitude and out of phase. Likewise, when the line is shorted, the voltage is zero, and the only way that can happen is for the reverse voltage wave to be equal in magnitude and opposite in phase to the forward voltage wave.

Some confusion can result when discussing the reverse wave. The reverse current wave can be, and usually is, defined as positive in the same direction as the forward wave. If you use this definition, the current changes phase at a shorted end, since the sum of the two current waves has to equal zero when both are defined as being positive in the same direction. However, you can also say that the current simply reverses direction and remains the same in phase. Those two viewpoints are equivalent. I've been using, and will continue to use, the convention that the direction of positive current is toward the load for both waves, for this discussion.

At an open end, the forward and reverse voltages are equal and in phase, and at a shorted end, the forward and reverse currents are equal and in

phase. This can be seen by realizing that the voltage/current ratio of the forward wave is the same as for the reverse wave -- both equal the line Z0, but because of the current convention, the sign of the current reverses for the reflected wave. So we know that Vf/If = -Vr/Ir, where If and Ir are defined as positive when flowing toward the load. Now let's apply what we know about shorted ends to find what happens at an open end. At an open end, we know that If = -Ir. Since Vf/If = -Vr/Ir, it follows that Vr = Vf. Likewise, at an open end, we know that Vf = -Vr, so from the same equation If = Ir.

Roy Lewallen, W7EL

184. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 22:21:46 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <hcior1pvh4nhl4aamo3c7hf766dfb3pgfb@4ax.com>
Source record: 65645

On Wed, 04 Jan 2006 21:35:40 GMT, Owen Duffy <owen@no.where> wrote:

>On Tue, 03 Jan 2006 08:25:48 -0700, Wes Stewart <n7ws*@*yahoo.com>
>wrote:
>
>
>>Owen
>>
>>Let me pick a nit or two.
>
>...
>
>Firstly, thanks for posting AN 77-3, it is a long time since I read
>it, and have little recollection of the recommended low frequency test
>setup.
>
>The HP 11549A is described as a power splitter, so I am guessing that
>it is some kind of hybrid (ie as in hybrid transformer) that in that
>role, whilst splitting the power to the "output" ports, will prevent
>power flow between "output" ports, so isolating the A probe to some
>extent from the reflected wave on the unknown load side.

Nothing so exotic

www.k6mhe.com/n7ws/HP-11549.pdf

>
>Additionally, the 8491 attenuator in the load path will improve the
>return loss at the B side 11549A port, so that combination seems to be
>stabilising the loads presented to the splitter (which if it is a
>hybrid, improves is cross port isolation), and improving the RL by the
>action of the attenuator and splitter.
>
>Without knowing the loss in the 8491 (I know they were available in
>10dB, but I think there were -3, -6, -10 and -20s), or the isolation
>across the splitter, it is hard to quantify the total isolation of
>reflected wave from the A probe.
>
>It may be that Dan should consider constructing a hybrid or Return
>Loss Bridge, whatever you want to call it, it will be cheaper and have
>less loss that a dual directional coupler for HF measurements. IIRC,
>the ARRL has some simple designs.

Maybe, but I think Dan is trying some VHF measurements and the coupler
approach is really the way to go.

Wes

185. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 22:36:06 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <q5Yuf.3158$Hl6.836@newsread3.news.pas.earthlink.net>
Source record: 65646

Roy Lewallen wrote:

> W. Watson wrote:
>
>> It seems reasonable that if I have an open ended transmission line
>> that the current would reflect back and change phase. After all, the
>> electrons at the end have nowhere to go but back down the line.
>> However, the voltage is a different matter. There is no phase reversal
>> (or polarization change) There doesn't seem to be an intuitive reason
>> for this. However, if one examines the equations for current and
>> capacitive voltage, then it falls out of the math. Still, where is the
>> non-math that indicates this is true?
>>
>> Now suppose instead the line is short circuited. The voltage returns
>> down the line, and the current does not.
>
>
> That's not true. Both are totally reflected.
Thanks for the response. Why is any wave reflected at all? In the open case, I can easily visualize the electrons (drifting cloud) having nowhere to go when they reach the end of the line, so the current literally has to go in reverse. Perhaps the shorted line represents a reactive circuit to the incident wave?
>
>> In this case, there doesn't seem to be any non-math or intuitive feel
>> for why the short should cause this--either for voltage or current.
>> Can one clue me in on what's really happening above (voltage) and here
>> (voltage and current)? Inquiring minds want to know.
>
>
> The math is dictated by the boundary conditions, and those can be used
> to gain an intuitive feel for what's happening. When both forward and
> reflected waves are present, the voltage and current at any point on the
> line are the sum of the forward and reverse waves. When the line is open
> circuited, the current at the end of the line is of course zero. So the
> sum of the forward and reverse current wave is zero at the end, and the
> only way that can be is for the forward and reverse waves to be equal in
> magnitude and out of phase. Likewise, when the line is shorted, the
> voltage is zero, and the only way that can happen is for the reverse
> voltage wave to be equal in magnitude and opposite in phase to the
> forward voltage wave.
Yes, this makes sense that one can deduce the result from the boundary conditions. I'll stop here for the moment until I understand the answer to the question above.

>
> Some confusion can result when discussing the reverse wave. The reverse
> current wave can be, and usually is, defined as positive in the same
> direction as the forward wave. If you use this definition, the current
> changes phase at a shorted end, since the sum of the two current waves
> has to equal zero when both are defined as being positive in the same
> direction. However, you can also say that the current simply reverses
> direction and remains the same in phase. Those two viewpoints are
> equivalent. I've been using, and will continue to use, the convention
> that the direction of positive current is toward the load for both
> waves, for this discussion.
>
> At an open end, the forward and reverse voltages are equal and in phase,
> and at a shorted end, the forward and reverse currents are equal and in
> phase. This can be seen by realizing that the voltage/current ratio of
> the forward wave is the same as for the reverse wave -- both equal the
> line Z0, but because of the current convention, the sign of the current
> reverses for the reflected wave. So we know that Vf/If = -Vr/Ir, where
> If and Ir are defined as positive when flowing toward the load. Now
> let's apply what we know about shorted ends to find what happens at an
> open end. At an open end, we know that If = -Ir. Since Vf/If = -Vr/Ir,
> it follows that Vr = Vf. Likewise, at an open end, we know that Vf =
> -Vr, so from the same equation If = Ir.
>
> Roy Lewallen, W7EL

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

186. Re: Reflectometer measurements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 22:46:20 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <0fYuf.3714$QI6.1129@trnddc07>
Source record: 65647

Thanks Wes

"Wes Stewart" <*n7ws*@ yahoo.com> wrote in message
news:hlaor1d522si1ampkm3mh5imqjtf3ou9o8@4ax.com...
> In light of recent discussions about using an HP 8405 VVM, etc to make
> impedance measurements, and thanks to Danny, K6MHE, for the storage
> space, I have placed a couple of references that might be of interest
> at:
>
> http://www.k6mhe.com/n7ws/
>
> See numbers 8 and 9.

187. Re: Shorting out a transmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 22:57:42 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dphjt5$d3p$1@engnntp2.cig.mot.com>
Source record: 65649

"Paul Burridge" <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote
in message news:g1tvq1h1gdc3mvi4jmqfkc4jm7hpqqrktl@4ax.com...

> >
> That just strikes me as plain stoopid. At MW, such filtering would be
> far better achieved by lumped elements. A quarter wave stub at such
> frequencies appears impractical, unwieldy and rather expensive!
> --

Even at 50 KW?
73, Steve, K,9.D;C'I

P.S. I suspect it is air line, no?

188. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 23:01:05 UTC
From: richardharrison@webtv.net
Message-ID: <3015-43BC53B1-299@storefull-3253.bay.webtv.net>
Source record: 65648

W. Watson wrote:
"It seems reasonable that if I have an open ended transmission line that the current would reflect back and change phase."

That`s about what happens. In fact, the incident and reflected waves at an open circuit have voltages of the same phase and magnitudes. These correspond to a reflection coefficient of 1 on an angle of zero. The result is a doubling of the incident value of voltage at the open circuit. I recall this being called "the Ferranti effect".

It stands to reason that energy is not created or destroyed but the ebergy associated with the H-field must go somewhere when the current stops. The only place it can go is into the E-field, so this accounts for the instantaneous voltage doubling at the open circuit. The current reverses direction and its incident and reflected values add to zero at the open end of the line.

When either voltage or current has a phase reversal, but not both are reversed, a reversal of wave travel direction is indicated. The same thing happens at a short circuit but it is the voltages which add to zero, indicating its phase reversal at the short.

When both current and voltage are reversed in phase, no change in travel direction is indicated as this happens regularly in the cycle of the wave.

Best regards, Richard Harrison, KB5WZI

189. Re: Shorting out a transmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 23:05:01 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dphkat$df5$1@engnntp2.cig.mot.com>
Source record: 65650

I believe this is a good test and conclusion. I can only add two small things.

1- the impedance gets further from 50 ohms, the 269 MFJ (Mine has this characteristic) shows more and more error. Try paralleling four 50 ohm loads (with your Tees) or measuring a good 200 ohm load. The 269 shows considerable imaginary at 4:1 real (:-(I think I have heard that the 259 is better.

2- The constant reference to the "pin" being much less than a 1/4 wave is not the correct focus. It is the impedance (primarily inductance in this case) which is the factor of interest relative to the frequency. What's that old rule of thumb? One nano Henry per inch?? One nano Henry per 1/10 inch... Been off that bench too long.

73, Steve, K9DCI

"Dave Platt" <dplatt@radagast.org> wrote in message news:11qu9fossjcp3a7@corp.supernews.com...
> >If I can find a scrap BNC male connector, and make a shorting-plug out
> >of it, I'll run the coax-and-T experiment I suggested, and post some
> >actual numbers for the systems's behavior at those frequencies I can
> >coerce out of my MFJ-269.
>
> OK, I ran the test, and the results are pretty much as I had
> anticipated. Although the test arrangement and gear isn't
> lab-standard, I think it's good enough to confirm the basic principles.
>
> Test equipment: MFJ-259 antenna analyzer, with an N-to-BNC adapter.
>
> Transmission line and load: 12' length of RG-58 coax, with a 50-ohm
> Ethernet terminator attached to the end.
>
> Shorting insertion: an additional 6' length of RG-58, with a couple of
> BNC "T" adapters, which can be inserted between the analyzer and the
> T-line-and-load. If the shorting plug is inserted it'll be 6' from
> the analyzer and 12' from the load.
>
> Short circuit: a male BNC plug, with a short inserted between center
> pin and shell as far down inside the shell as possible.
>
> First test: check quality of T-line and load, using only the 12'
> section of RG-58 between analyzer and load. Note that the Imag(load)
> numbers do not indicate the sign of the reactance... the MFJ won't do
> that, alas.

>
> Frequency Real(load) Imag(load) Indicated SWR
> 2.5 52 4 1.0
> 5 58 6 1.2
> 10 57 7 1.2
> 15 49 1 1.0
> 20 56 6 1.1
> 50 54 2 1.1
> 144 51 4 1.0
> 166 59 8 1.2
> 440 1.4
>
> Impression: either the RG-58 or the Ethernet terminator isn't
> exactly 50 ohms (not unexpected) or the MFJ's calibration isn't
> perfect (likewise) but the figures are good enough to let us draw some
> reasonable conclusions.
>
> Second test: insert the 6' RG-58 and its T connectors between the
> analyzer and the 12' section. See how much this additional length of
> line, and the parasitics of the T connectors, affect the load and SWR.
>
> Frequency Real(load) Imag(load) Indicated SWR
> 2.5 54 4 1.1
> 5 59 5 1.2
> 10 50 10 1.2
> 15 49 1 1.0
> 20 51 8 1.1
> 50 48 5 1.1
> 144 50 4 1.0
> 166 40 2 1.2
> 440 1.1
>
> Impression: the measured values change a bit, but the SWRs are close or
> identical (save for the 440 measurement). The additional length of
> line, and the parasitics from the T connectors, are shifting things
> around a bit (especially at 440)... not unexpected.
>
> Third test: connect the shorting plug to one of the T connectors. See
> what "pinning the line" does to the analyzer's view of the load.
>
> Frequency Real(load) Imag(load) Indicated SWR
> 2.5 0 6 >31
> 5 0 12 >31
> 10 1 26 >31
> 15 1 43 >31
> 20 2 70 >31
> 50 0 44 28.7
> 144 7 33 15.4
> 166 166 353 13.0
> 440 >5

>
> Impression: yeah, that looks like a short circuit, transformed via a
> feedline. Nothing close to a 50-ohm-resistive load shows up at any of
> the test frequencies.
>
> Fourth test: disconnect the 50-ohm load from the end of the 12' line,
> creating an abrupt change in the load impedance. See what this does
> to the figures from the third test - how much of the antenna load
> change gets back "around" the short?
>
> Frequency Real(load) Imag(load) Indicated SWR
> 2.5 0 6 >31
> 5 0 12 >31
> 10 1 25 >31
> 15 1 43 >31
> 20 2 70 >31
> 50 6 44 29.0
> 144 6 30 18.5
> 166 133 317 14.1
> 440 >5
>
> Impression: changing the antenna load from 50-ohms-resistive to
> near-infinite made a slight change in the impedance seen by the
> analyzer, but not much at all at any frequency. The presence of the
> short circuit 6 feet from the analuzer is still dominating the load
> that the analyzer "sees".
>
> Special-distance test: with the short, and the 50-ohm load both in
> place, sweep the analyzer frequency around the ranges at which the
> analyzer-to-short distance is around 1/4 and 1/2 wavelength. See if
> we can "see past" the short under these conditions.
>
> Measurements: with the short circuit in place, and a 50-ohm load at
> the end of the 12' line, an impedance peak (Z>1500 ohms) is noted when
> sweeping between 32.14 MHz and 32.94 MHz. An impedance minimum
> (Real(load) of 2-3 ohms, Imag(load) of 0 ohms) is noted between 65.7
> MHz and 65.85 MHz. The indicated SWR remains high (22 or above) at
> all frequencies between the impedance maximum and impedance minimum...
> there's no point at which the load resembles anything like "50 ohms
> resistive, little reactive component".
>
> Removing the 50-ohm load, and thus open-circuiting the antenna
> feedline, has no significant effect on the impedance as seen at the
> quarter-wavelength maximum, at the half-wavelength minimum, or at
> points in between.
>
> Impression: we cannot "see past" the short circuit, no matter whether
> it's a quarter-wavelength from the transmitter, a half-wavelength, or
> some distance in between these two. The analyzer "sees" only what
> would be expected for a short circuit, transformed by 6' of coax.

>
> Short-circuit quality test: measure impedance of the shorted BNC plug.
>
> At 16 MHz and below, the MFJ-269 shows it as 0+0j. Above 16 MHz, some
> reactance shows up... 2 ohms at 28 MHz, 3 ohms at 42 MHz, 4 ohms and
> 55 MHz, 8 ohms at 112 MHz, 10 ohms at 144 MHz, 12 ohms at 169 MHz.
> The inductance of the shorted plug itself, and/or the length of the
> N-to-BNC adapter on the analyzer, is having some effect. SWR remains
> unreadably high: >31 up through VHF and >5 on 440. It's not the
> highest-quality "short circuit" in the world, for certain, but at HF
> and VHF it's close enough for our purposes here.
>
> So... what do I conclude from this?
>
> I conclude that at HF and VHF frequencies, if you accidentally short
> your transmitter-to-antenna coaxial feedline (with a pin, nail, or a
> loose strand of coax braid which "gets loose" inside a connector),
> you're going to present your transmitter with an unrealistic load
> (high, low, or nastily reactive) and that the power flow up the
> feedline is going to stop at the short circuit.
>
> Since no "short circuit" in the real world is going to have 0+0j
> impedance, this isn't *absolutely* true, but you can probably consider
> it to be *practically* true and correct at these frequencies, with
> this sort of shorting.
>
> I further conclude that with respect to the above, there's no 'magic'
> about shorts which happen to occur at a quarter-wavelength distance
> from the transmitter. In this situation, the transmitter will 'see'
> something which behaves like a quarter-wavelength shorted stub... the
> load further up the transmission line at the antenna remains
> 'invisible' to the transmitter.
>
> At high-UHF and SHF/microwave frequencies, where a direct "short" is
> likely to be a significant fraction of a wavelength, then the
> additional reactance of the "short" will certainly affect how the
> undesired connection affects what the transmitter "sees". It may
> hurt, or help (helping to "tune out" reactance from the antenna
> itself), or may be completely invisible. Allison is entirely correct
> on this point, under these particular conditions.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

190. Re: Crimp, Clamp or Solder?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 23:16:33 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dphl0hdud1@engnntp2.cig.mot.com>
Source record: 65651

"W8LNA" <W8LNA@arrl.net> wrote in message
news:udhsf.2134$OU3.370@news01.roc.ny...
> kd5sak wrote:
> > "Bill Turner" <noway@nohow.com> wrote in message
> > news:0bj2r15i9iic4td11aejgpe330g8b07efe@4ax.com...
> >
> >>Nonsense.
> >>
> >>Properly crimped, the wire will break before the crimp "works loose".
> >>
> >>Your tire has multiple lug nuts to spread the stress, not because a
> >>smaller number will "work loose".
> >>
> >>73, Bill W6WRT
> >
> >
> > Guess that's right, let's see now. Formula ! car wheels just have one
big
> > lug nut, don't they?
>
> Yes, and six drive pegs
> http://www.f1-country.com/f1-engineer/tyres/wheelrim.html
>
> so the nut only holds the wheel to the hub and doesn't take the stresses
> of propelling the car.
> W8LNA

On street wheels the nuts do support torque, but not like a single central
one would (like the formula 1 without the pegs). The holes in the wheel are
tapered, the nut seats on the taper and the lug shaft (threaded lug) does
not contact the wheel hole. The torque is transferred by radial forces on
the nuts. (pardon any unintended pun)
73, Steve, K9DCI

191. Re: Searching for circuit for active antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-04 23:29:23 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dphlok$ej4$1@engnntp2.cig.mot.com>
Source record: 65652

You'll get "about 155,000 results for "active antenna". in 0.04 seconds

The first of which is a schematic.
http://www.ee.washington.edu/circuit_archive/circuits/activeant.html

73, Steve, K,9'D;C.I

"LarryLurker" <Larry@Lurker.net> wrote in message
news:3g14r1lbde70aqcvp1cq4qa8qo4of2q7vf@4ax.com...
> try "active antenna" in Google.
>
>
> On Wed, 28 Dec 2005 02:43:56 +0100, Reinhard Zwirner
> <reinhard_zwirner@web.de> wrote:
>
> >Dear experts
> >
> >I'm searching for a simple but good-working and reliable circuit
> >for a 10 kHz - 30 MHz active antenna. It would be very nice if
> >someone showed me a link to such a circuit.
> >
> >TIA and a happy new year
> >
> >Reinhard

192. Re: FM transmitter in a vehicle

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 00:25:24 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dphp1kgtv1@engnntp2.cig.mot.com>
Source record: 65653

"Ron J" <bigschlong@gmail.com> wrote in message
news:1135976653.858893.150990@g43g2000cwa.googlegroups.com...

> Happy New Year!
>
> If I have an FM transmitter in a vehicle, do I need to worry about the
> vibration frequency? Is there such a thing as intermodulation from
> vibrating objects attached to an FM transmitter?
>
> I'm curious.

Short answers:

Worry - Probably not

Intermodulation - No.

Really long answer...

Not sure what you mean by "vibration frequency".

Here's the logic for what is called "Environmental Desensitization", or
"Environmental Desense" for short...sort of.

The type of transmitter is not important for this discussion.

The antenna produces an RF field around it and the vehicle (the desired
effect since it extends out to infinity).

Any conductor relatively near the vehicle or a conducting part of the
vehicle (call it a parasitic conductor or "PC" for short) will have RF
currents flowing in them as a result of the transmitter (this occurs whether
it is near or not - actually the distance only affects the strength of the
current, but for close spacing, the effect is easier to see & understand).

More simply stated: "Everything in the world is a receiving antenna."

The strength and relative phase of the current in the PC (compared to the
transmitted signal) will depend on many things (distance to main antenna,
shape, size, orientation, frequency, other objects and conductivity)

These PC RF currents will also produce an RF field in the region (around the
PC and vehicle). It is no different than the intentional transmitting
antenna except it is not cut to a desired length and shape, but accidental.

The PC RF field(s) will sum with the field from the transmitting antenna
thus producing a slightly modified field - I'll call the "Sum-Field".

The actual "Sum_Field" amplitude and phase depends on the relative strength and phase of the two fields at any point and is therefore complex. These fields sum in a vector addition manner. Sounds all pretty random up to here...

However, we can say for sure that:

If the current in the PC changes, the resulting "Sum-Field" will change.

If the position of the PC changes, the current in the PC will change.

If the size of the PC changes due to an intermittent connection with another near-by PC, the current in the PC will change.

And we know that:

If the PC current changes, the resulting PC field will change.

And most certainly

If the PC field changes, the "Sum-Field" will change.

Keeping in mind that:

A receiver near or far away will receive the "Sum-Field" at its location.

This means that if we have a conductor near the transmitter that, due to any of the above changes, it can "modulate" the field in some way. The modulation must have some relation to the change causing it. It will indeed contain the same characteristic that causes the changing current / field. Therefore, the "modulation" will have the same characteristic as the original change, and it will most certainly contain that vibration frequency or the noise which is the intermittent contact.

So, the bottom line is that the vibration (or noisy contact) will modulate the signal at the receiver. This modulation must most certainly be a combination of amplitude and phase modulation.

This effect is there and usually small enough to be unnoticeable, therefore it is of little to no concern most of the time. It can be the cause of noise in a mobile instillation from things like tail pipe vibration, hood (bonnet) hinges and latch and the like.

P.S. this same argument explains how directional antennas work, such as the common Yagi-Uda and all phased arrays whether parasitic or driven (phased).

73, Steve, K9DCI

P.S. The Apollo recovery and communication ships had this problem due to the High power HF transmitters causing RF current in the Deck railing chains which caused noise sidebands which extended up into the microwave frequencies interfering with the radars...believe it or not - don't know if this is on the web, but I have the NASA papers somewhere.

193. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 01:17:35 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <Ps_uf.8417$UF3.4611@newssvr25.news.prodigy.net>
Source record: 65654

And, consider: even then, It might not work as it does on another
frequency. Have a friend (this years ago), who modeled the Komosko-
Johnson yagi for 2 meters (a 13 el, antenna , that was emperically
designed), long before modeling programs, and then antenna range
measured. This was a staple of the old VHF handbooks, and the
ARRL handbooks for years, and seemed to deliver exceptional results.
He had pull at his local company (not to name them)! and had an
EXACT copy made for 1296, and then entered it into a antenna contest-
it failed misserably! (this not only was element length/Dia, spaceing,
,but BOOM diameter/length)!! It was (and is) a work of ART,
but it wont make his retirement check (or Contest Score)
any higher! For those that
wish to try it- look for those names, or for W2NLY-W6QKI in the
ARRL handbooks mentioned. But it must leave to the builder one
of the following conclusions: 1) It was great on 144, but a dog
on 1296, or: 2) It wasn't the greatest design , for even 144 (tho
it compairs favorable with the range patterns that were shown
in the VHF handbook, for 144)! As info, Jim NN7K

David wrote:
> Ian,
>
> Thanks for that.
>
> I did previously look at your site and bookmarked it. I am going to make
> up the element cutting jig and bending jig (for when I want to
> experiment with folded dipoles).
>
> Great site.
>
> Regards
>
> David
>
> Ian White GM3SEK wrote:
>
>> David wrote:
>>
>>> Hi,
>>>
>>> I have a design for a Yagi antenna at 436MHz and would like to scale
>>> it to 921 MHz. The calculations I used from the understanding I have
>>> obtained from reading various articles appears below.
>>>

>>> Would someone be kind enough to advise me if this procedure and
>>> values look correct ?
>>
>>
>> [...]
>>
>>>
>>> Regards
>>>
>>> David Huisman
>>
>>
>>
>>
>> The basic principle of scaling antennas according to wavelength is
>> that you must make an *exact* scale model. That means scaling every
>> dimension, and not adding any new or different 'features'.
>>
>> Often that isn't practical for mechanical engineering reasons, so then
>> you need to apply corrections. However, you should still aim to keep
>> those corrections as small as possible. For example, simple scaling is
>> likely to produce odd, unavailable values for the element diameter, so
>> it's OK to use corrections to change to the nearest commercially
>> available diameter. But if you also decide to double the diameter, the
>> correction is more risky - you're entering the territory of a
>> completely new design.
>>
>> Sorry that I don't have time to check your particular dimensions in
>> detail, David, but you can find resources for scaling and
>> constructional techniques on my 'VHF/UHF Long Yagi Workshop' pages.
>> There is a downloadable program which leads you through the relevant
>> questions, and also a link to an online Javascript version.
>>
>> (From about 1200utc I will not have access to this newsgroup for the
>> next few days, so I hope the above will keep you going.)
>>
>>

194. Re: FM transmitter in a vehicle

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 01:26:26 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <6B_uf.8424$UF3.956@newssvr25.news.prodigy.net>
Source record: 65655

Answer-- Don't worry about it! tho, during WWII, there was
the use of a "WOBBULATOR" in some 450 MHz airborn , Friend
or Foe radio sets, these were pre- crystal, P.L.L. type
radios, Broad as a barn (kinda like tuneing a Grid Dip
oscillator to a fm freq, and then YELLING at it-- it will
fm it, but, it won't be reliable for communications)!
But, with todays technology , you will get more phase flutter
from multipath than anything else! Jim NN7K

Steve Nosko wrote:
> "Ron J" <bigschlong@gmail.com> wrote in message
> news:1135976653.858893.150990@g43g2000cwa.googlegroups.com...
>
>
>>Happy New Year!
>>
>>If I have an FM transmitter in a vehicle, do I need to worry about the
>>vibration frequency? Is there such a thing as intermodulation from
>>vibrating objects attached to an FM transmitter?
>>
>>I'm curious.
>
>
>
>
> Short answers:
>
> Worry - Probably not
>
> Intermodulation - No.
>
>
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>
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>
> Really long answer...
>
>
>
> Not sure what you mean by "vibration frequency".
>
>
>
> Here's the logic for what is called "Environmental Desensitization", or

> "Environmental Desense" for short...sort of.
>
>
>
> The type of transmitter is not important for this discussion.
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>
> The antenna produces an RF field around it and the vehicle (the desired
> effect since it extends out to infinity).
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>
> Any conductor relatively near the vehicle or a conducting part of the
> vehicle (call it a parasitic conductor or "PC" for short) will have RF
> currents flowing in them as a result of the transmitter (this occurs whether
> it is near or not - actually the distance only affects the strength of the
> current, but for close spacing, the effect is easier to see & understand).
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> More simply stated: "Everything in the world is a receiving antenna."
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> The strength and relative phase of the current in the PC (compared to the
> transmitted signal) will depend on many things (distance to main antenna,
> shape, size, orientation, frequency, other objects and conductivity)
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> These PC RF currents will also produce an RF field in the region (around the
> PC and vehicle). It is no different than the intentional transmitting
> antenna except it is not cut to a desired length and shape, but accidental.
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> The PC RF field(s) will sum with the field from the transmitting antenna
> thus producing a slightly modified field - I'll call the "Sum-Field".
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> The actual "Sum_Field" amplitude and phase depends on the relative strength
> and phase of the two fields at any point and is therefore complex. These
> fields sum in a vector addition manner. Sounds all pretty random up to
> here...
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> However, we can say for sure that:
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> If the current in the PC changes, the resulting "Sum-Field" will change.

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> If the position of the PC changes, the current in the PC will change.
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> If the size of the PC changes due to an intermittent connection with another
> near-by PC, the current in the PC will change.
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> And we know that:
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> If the PC current changes, the resulting PC field will change.
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> And most certainly
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> If the PC field changes, the "Sum-Field" will change.
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> Keeping in mind that:
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> A receiver near or far away will receive the "Sum-Field" at its location.
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> This means that if we have a conductor near the transmitter that, due to any
> of the above changes, it can "modulate" the field in some way. The
> modulation must have some relation to the change causing it. It will indeed
> contain the same characteristic that causes the changing current / field.
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> (bonnet) hinges and latch and the like.
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> P.S. this same argument explains how directional antennas work, such as the

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> frequencies interfering with the radars...believe it or not - don't know if
> this is on the web, but I have the NASA papers somewhere.
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195. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 01:43:30 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <6R_uf.170236$V7.94549@news-server.bigpond.net.au>
Source record: 65656

Jim,

Thanks for your input of caution.

I'm sure that along with all the horror stories there are a multitude of success stories.

My belief is that antennas have been around for years and millions have been constructed on almost every frequency imaginable.

In my case I am new to antenna design and green when it comes to determining the parameters that would best suit my applications.

My requirements are not critical with regard to front/back ratio or the last drop of gain available for a specific design.

I find there are always such a range of responses to a request.
Some of these are the theorists that love to explain how black holes in the universe some 10 million light years away might effect free electrons floating on the end of a copper wire.

Then we have the ones that are not particularly experienced but like to have a say on every topic. They would normally ask why you want it in the first place. "Oh, you want blue, why not have red".

Between these extremes are a bunch of very kind people who have "played" with antennas and gained practical experience that they are prepared to pass on to others.

Modeling programs have come a long way and my understanding is that as long as you model the unit correctly, your actual results should not be too far off. (I don't know how to model yet so hence the reason to ask for help).

I imagine there are still some disasters when engineers build new cars but I believe this would mainly occur when something is overlooked or they are trying to achieve something new.

I am not trying to break any new ground here, just looking for around 7 dBi gain from a Yagi at 921MHz.

Regards

David Huisman

Jim - NN7K wrote:
> And, consider: even then, It might not work as it does on another
> frequency. Have a friend (this years ago), who modeled the Komosko-
> Johnson yagi for 2 meters (a 13 el, antenna , that was emperically

> designed), long before modeling programs, and then antenna range
> measured. This was a staple of the old VHF handbooks, and the
> ARRL handbooks for years, and seemed to deliver exceptional results.
> He had pull at his local company (not to name them)! and had an
> EXACT copy made for 1296, and then entered it into a antenna contest-
> it failed misserably! (this not only was element length/Dia, spaceing,
> ,but BOOM diameter/length)!! It was (and is) a work of ART,
> but it wont make his retirement check (or Contest Score)
> any higher! For those that
> wish to try it- look for those names, or for W2NLY-W6QKI in the
> ARRL handbooks mentioned. But it must leave to the builder one
> of the following conclusions: 1) It was great on 144, but a dog
> on 1296, or: 2) It wasn't the greatest design , for even 144 (tho
> it compairs favorable with the range patterns that were shown
> in the VHF handbook, for 144)! As info, Jim NN7K
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> David wrote:
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>> Ian,
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>> Thanks for that.
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>> I did previously look at your site and bookmarked it. I am going to
>> make up the element cutting jig and bending jig (for when I want to
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>>>> obtained from reading various articles appears below.
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>>>> values look correct ?
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>>>> Regards
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>>>> David Huisman
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>>> that you must make an *exact* scale model. That means scaling every
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>>> then you need to apply corrections. However, you should still aim to
>>> keep those corrections as small as possible. For example, simple
>>> scaling is likely to produce odd, unavailable values for the element
>>> diameter, so it's OK to use corrections to change to the nearest
>>> commercially available diameter. But if you also decide to double the
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>>> questions, and also a link to an online Javascript version.
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>>> (From about 1200utc I will not have access to this newsgroup for the
>>> next few days, so I hope the above will keep you going.)
>>>
>>>

196. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 03:14:52 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bc8f47$0$3754$39cecf19@news.twtelecom.net>
Source record: 65657

Jim - NN7K wrote:

> And, consider: even then, It might not work as it does on another
> frequency. Have a friend (this years ago), who modeled the Komosko-
> Johnson yagi for 2 meters (a 13 el, antenna , that was emperically
<snip>
> in the VHF handbook, for 144)! As info, Jim NN7K
>

When properly done, I have never had a scaled design fail to perform as expected. I have done several dozen. The designs were 144, 220, 222, and 432 as source and destination.

I don't expect this one will surprise me as to how it performs, especially as it is insulated above the boom.

tom
K0TAR

197. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 03:32:07 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bc9351$0$3756$39cecf19@news.twtelecom.net>
Source record: 65659

Jim - NN7K wrote:

> wish to try it- look for those names, or for W2NLY-W6QKI in the
> ARRL handbooks mentioned. But it must leave to the builder one
> of the following conclusions: 1) It was great on 144, but a dog
> on 1296, or: 2) It wasn't the greatest design , for even 144 (tho
> it compairs favorable with the range patterns that were shown
> in the VHF handbook, for 144)! As info, Jim NN7K

And, except for the K1FO designs, the VHF handbook contains one of the worst collections of yagis ever assembled. They are at least as bad as the Cushcraft VHF/UHF yagis that had the dual reflectors.

198. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 03:32:39 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <rr0vf.174267$V7.122504@news-server.bigpond.net.au>
Source record: 65658

That's what I expected from people who have practical experience and
understand the principles (much better than I current do).

I managed to track down thinner aluminum rod that is much closer to
scaled values of elements in the original design.

The values should be 3.78mm and I can get 3.175mm
For the 4.73mm , I can get 4.763mm.

This should now be close enough to only require small trim in length
to compensate for small change in diameter.

Tom Ring wrote:
> Jim - NN7K wrote:
>
>> And, consider: even then, It might not work as it does on another
>> frequency. Have a friend (this years ago), who modeled the Komosko-
>> Johnson yagi for 2 meters (a 13 el, antenna , that was emperically
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> <snip>
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>> in the VHF handbook, for 144)! As info, Jim NN7K
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> expected. I have done several dozen. The designs were 144, 220, 222,
> and 432 as source and destination.
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> I don't expect this one will surprise me as to how it performs,
> especially as it is insulated above the boom.
>
> tom
> K0TAR
>

199. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 03:40:52 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43bc955e$0$3764$39cecf19@news.twtelecom.net>
Source record: 65660

David wrote:

> That's what I expected from people who have practical experience and
> understand the principles (much better than I current do).
>
> I managed to track down thinner aluminum rod that is much closer to
> scaled values of elements in the original design.
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> For the 4.73mm , I can get 4.763mm.
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> This should now be close enough to only require small trim in length
> to compensate for small change in diameter.

The diameter ratio would be fine given the first diameter you listed.
The others would be fine also. Just specify what you want to use.

tom
K0TAR

200. Re: Scaling of Yagi design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 04:05:45 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <tW0vf.175359$V7.93214@news-server.bigpond.net.au>
Source record: 65661

Tom,

I have heaps of 6mm in stock. The smaller diameter has to be ordered specially and is more expensive.

So:

Frequency 921 MHz. (20MHz BW or more would be good).

Gain >= 7dBi

F/B ratio not critical.

4 Element Yagi - input impedance of around 29 Ohms (can easily match with 2 par 75 Ohm 1/4 wave section).

Unit to be operated vertically orientated at height greater than 2m.

Element diameters 6mm

Boom is 12mm square aluminium. Elements mounted 3-5mm above boom on nylon insulator block.

Just need accurate lengths and spacing now.

Tom Ring wrote:
> David wrote:
>
>> That's what I expected from people who have practical experience and
>> understand the principles (much better than I current do).
>>
>> I managed to track down thinner aluminum rod that is much closer to
>> scaled values of elements in the original design.
>>
>> The values should be 3.78mm and I can get 3.175mm
>> For the 4.73mm , I can get 4.763mm.
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>> This should now be close enough to only require small trim in length
>> to compensate for small change in diameter.
>
>
> The diameter ratio would be fine given the first diameter you listed.
> The others would be fine also. Just specify what you want to use.
>
> tom
> K0TAR
>

201. Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 04:14:45 UTC
From: jawod <jawod@fuse.net>
Message-ID: <71286$43bc9d37$42a1bfc2$1899@FUSE.NET>
Source record: 65662

I will assume that balanced (air) feedline is homebrew. What recommendations are there for spacing between the twin lines? Number of spacers per foot? If homebrew, how to keep spacers from migrating...will small wire "stays" modify feedline characteristics?

This is all about feedline to simple dipole or inverted V.

Thanks,

a new (old) ham

jawod aka john

202. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 04:47:41 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <Nx1vf.1099$WY5.298@newsread2.news.pas.earthlink.net>
Source record: 65663

W. Watson wrote:

> Roy Lewallen wrote:
>
>> W. Watson wrote:
>>
>>> It seems reasonable that if I have an open ended transmission line
>>> that the current would reflect back and change phase. After all, the
>>> electrons at the end have nowhere to go but back down the line.
>>> However, the voltage is a different matter. There is no phase
>>> reversal (or polarization change) There doesn't seem to be an
>>> intuitive reason for this. However, if one examines the equations for
>>> current and capacitive voltage, then it falls out of the math. Still,
>>> where is the non-math that indicates this is true?
>>>
>>> Now suppose instead the line is short circuited. The voltage returns
>>> down the line, and the current does not.
>>
>>
>>
>> That's not true. Both are totally reflected.
>
> Thanks for the response. Why is any wave reflected at all? In the open
> case, I can easily visualize the electrons (drifting cloud) having
> nowhere to go when they reach the end of the line, so the current
> literally has to go in reverse. Perhaps the shorted line represents a
> reactive circuit to the incident wave?
Well, I looked at some physics books that I have access to, Waves by Crawford, in particular. He spends an entire chapter, called Reflections(!), and seems to hit every aspect of how all this works in every conceivable circumstance. One somewhat length section deals with transmission between different media using a variety of explanations using dash pots, strings, and so on. He gets all this out of the way by developing reflection coefficients and other tools, including some boundary analysis, I believe. Then in about 2-3 pages dispenses with transmission lines by looking at boundary conditions using what was developed earlier. This is non-trivial material, and would likely takes many pages of explanation and diagrams to reduce it to a simpler form.

I think I'll pass on going any further with my question via this thread. I can probably drag out enough satisfactory info on this from the book and a few other sources to keep me happy. We could develop a very long thread otherwise. Nevertheless, thanks for your interest and insights via shedding some light on boundary conditions.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"I often quote myself - it adds spice to
my conversation." - George Bernard Shaw

Web Page: <home.earthlink.net/~mtnviews>

203. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 06:23:40 UTC
From: richardharrison@webtv.net
Message-ID: <26048-43BCBB6C-1527@storefull-3251.bay.webtv.net>
Source record: 65664

Wayne Watson wrote:
"The voltage returns down the line, and the current does not."

What happens on reflection is that either the phase of the current is reversed with an open circuit, or the phase of the voltage is reversed with a short circuit, in the event of a complete reflection from an open or a short. In either case, there is a reversal in phase of only one of the components of the electromagnetic wave, not both. However, the total wave is reflected.

A transverse electromagnetic wave consists of two components, an electric field and a magnetic field. An incident wave has both parts in-phase until it is reflected.

A reflected wave has its two parts 180-degrees out-of-phase upon its first reflection. This fact is how the directional coupler in the Bird Wattmeter distinguishes between the waves traveling in opposite directions through the wattmeter.

Both voltage and current return upon reflection. The difference is zero phase difference in one direction, and 180-degrees difference in the opposite direction.

Best regards, Richard Harrison, KB5WZI

204. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 07:01:26 UTC
From: richardharrison@webtv.net
Message-ID: <19245-43BCC446-1109@storefull-3252.bay.webtv.net>
Source record: 65665

John wrote:
"---how to keep spacers from migrating..."

My 1970 edition of the ARRL Antenna Book shows how to construct open wire line. The insulating spacers have holes near their ends and their ends are also grooved for the line conductors.

A small tiewire is run through the hole and its ends are tightly wrapped around the transmission line conductors to hold everything in place.

Best regards, Richard Harrison, KB5WZI

205. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 08:11:23 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <11rpl5b86d0r0ef@corp.supernews.com>
Source record: 65666

buy it already built. Why wear yourself out building stuff available on
the shelf?

Richard Harrison wrote:
> John wrote:
> "---how to keep spacers from migrating..."
>
> My 1970 edition of the ARRL Antenna Book shows how to construct open
> wire line. The insulating spacers have holes near their ends and their
> ends are also grooved for the line conductors.
>
> A small tiewire is run through the hole and its ends are tightly wrapped
> around the transmission line conductors to hold everything in place.
>
> Best regards, Richard Harrison, KB5WZI
>

206. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 11:35:13 UTC
From: "Edward A. Feustel" <efeustel@direcway.com>
Message-ID: <jtqdnQFid6IdmSDenZ2dnUVZ_t2dnZ2d@giganews.com>
Source record: 65667

"jawod" <jawod@fuse.net> wrote in message
news:71286$43bc9d37$42a1bfc2$1899@FUSE.NET...
>I will assume that balanced (air) feedline is homebrew. What
>recommendations are there for spacing between the twin lines? Number of
>spacers per foot? If homebrew, how to keep spacers from migrating...will
>small wire "stays" modify feedline characteristics?
>
> This is all about feedline to simple dipole or inverted V.
>
> Thanks,
>
> a new (old) ham
>
> jawod aka john

I bought 600 ohm feedline (and dipole) from W7**.
He uses pieces of PVC pipe with notches in the ends
and insulated wires. The notches provide a friction fit on
the wires. Note that you need to be certain that the
PVC has very high resistance at RF frequencies. I
have been told that some do not. You can tell if you
run higher power and the insulators heat up.

You can also buy "ladderline" with 450 or 300 ohm
impedances from a number of sources.

If you can support the center of the dipole, weight is not
as much concern as if you cannot support it. With too heavy
a ladder line, your dipole may resemble a Y.

Regards,
Ed, N5EI

207. Re: Shorting out a transmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 12:09:28 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43bd0bba_3@newsfeed.slurp.net>
Source record: 65668

> Even at 50 KW?
> 73, Steve, K,9.D;C'I
>
> P.S. I suspect it is air line, no?

Yes. In the case of WJR, it was a length of 1-5/8" OD air-insulated rigid line (20 foot standard lengths plus a custom length).

208. Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 12:25:23 UTC
From: Ted <ted@trufflesdad.plus.com>
Message-ID: <43bd1032$0$82676$ed2619ec@ptn-nntp-reader03.plus.net>
Source record: 65669

I have about 40 feet of garden to erect an antenna....Could anyone tell
me if I took 2 20 feet length of twin ladder and shorted the ends
fed one side of the dipole with twin ladder and connected a 52 ohm
resistor across the other side so the tx would see a match would be
better than feeding a 40 foot endfed through an atu...
My thinking is that most of the small antenna on the market are just
dummy loads with a small amount of wire attached and appear to work so
would my 40 feet work better.. ??

--
Regards
Ted Wager
Using Debian Linux

209. FCC ULS Link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 14:37:05 UTC
From: Gabe <Gabe@UNCLE.org>
Message-ID: <43BD2F10.3672747B@UNCLE.org>
Source record: 65670

hello,

here is a link to the FCC ULS databasse,
it has no ads to slow you down like other sites,

http://gullfoss2.fcc.gov/cgi-bin/ws.exe/genmen/uls/call_res.hts?db_id=19&rows=&callsign=

add it to your bookmarks, then after you go there just add
the callsign you want to check to the end of the line and
then hit enter again.

Gabe

210. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:05:36 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <obdqr11c3vi0on8i5gqkuueqilfbfe4fft@4ax.com>
Source record: 65671

On Wed, 04 Jan 2006 23:14:45 -0500, jawod <jawod@fuse.net> wrote:

>I will assume that balanced (air) feedline is homebrew. What
>recommendations are there for spacing between the twin lines? Number of
>spacers per foot? If homebrew, how to keep spacers from
>migrating...will small wire "stays" modify feedline characteristics?
>
>This is all about feedline to simple dipole or inverted V.
>
>Thanks,
>
>a new (old) ham
>
>jawod aka john

already-made 600 ohm line is available at www.w7fg.com

bob
k5qwg

211. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:21:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HPavf.9009$UF3.746@newssvr25.news.prodigy.net>
Source record: 65672

W. Watson wrote:
> It seems reasonable that if I have an open ended transmission line that
> the current would reflect back and change phase. After all, the
> electrons at the end have nowhere to go but back down the line. However,
> the voltage is a different matter. There is no phase reversal (or
> polarization change) There doesn't seem to be an intuitive reason for
> this. However, if one examines the equations for current and capacitive
> voltage, then it falls out of the math. Still, where is the non-math
> that indicates this is true?

The forward current hits an open-circuit. The net current is zero.
Therefore, the reflected current must be equal in magnitude and
opposite in phase to the forward current at the open-circuit.
Since the net current goes to zero, i.e. the magnetic field goes
to zero, all the energy existing at that point must
migrate into the electric field thus increasing the voltage. And
indeed, the voltage doubles at an open-circuit indicating that
the reflected voltage is equal in magnitude and phase to the
forward voltage. A simple RF voltage measurement at the open-
circuit will prove that the above is true.

> Now suppose instead the line is short circuited. The voltage returns
> down the line, and the current does not. In this case, there doesn't
> seem to be any non-math or intuitive feel for why the short should cause
> this--either for voltage or current. Can one clue me in on what's really
> happening above (voltage) and here (voltage and current)? Inquiring
> minds want to know.

It's (surprise) the reverse of an open-circuit. The net voltage goes
to zero at the short indicating that the electric field is zero at
that point. Therefore, all the energy existing at that point migrates
into the magnetic field. The reflected voltage is therefore equal in
magnitude and 180 degrees out of phase with the forward voltage. And,
indeed, the current at the short is double the magnitude of the forward
current indicating that the forward current and reflected current are
equal in magnitude and phase at a short circuit. RF voltage and current
measurements prove it to be true.
--
73, Cecil, http://www.qsl.net/w5dxp

212. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:30:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QYavf.9013$UF3.7360@newssvr25.news.prodigy.net>
Source record: 65673

jawod wrote:

> I will assume that balanced (air) feedline is homebrew. What
> recommendations are there for spacing between the twin lines? Number of
> spacers per foot? If homebrew, how to keep spacers from
> migrating...will small wire "stays" modify feedline characteristics?

For all-HF-band operation with relatively high SWRs, the
spacing doesn't much matter. 2"-6" is a practical range.
Spacer spacing depends upon wind conditions. Two foot
spacing seems reasonable at my QTH. Some spacers pinch
the insulation on the feedline and thus stay in place.
Very small tie wraps could also be used.
--
73, Cecil, http://www.qsl.net/w5dxp

213. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:32:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <K_avf.9014$UF3.4541@newssvr25.news.prodigy.net>
Source record: 65674

Butch Magee wrote:
> buy it already built. Why wear yourself out building stuff available on
> the shelf?

Heaven forbid that hams build anything anymore. :-)
--
73, Cecil, http://www.qsl.net/w5dxp

214. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:35:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <l1bvf.9015$UF3.6389@newssvr25.news.prodigy.net>
Source record: 65675

Ted wrote:
> I have about 40 feet of garden to erect an antenna....Could anyone tell
> me if I took 2 20 feet length of twin ladder and shorted the ends
> fed one side of the dipole with twin ladder and connected a 52 ohm
> resistor across the other side ...

Where is the ground for that 52 ohm resistor?
--
73, Cecil, http://www.qsl.net/w5dxp

215. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 15:37:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <U2bvf.9016$UF3.6954@newssvr25.news.prodigy.net>
Source record: 65576

Doug wrote:
> Looking for an Outbacker mobile HF antenna.

Since it is 9dB down from a screwdriver or
bugcatcher, one wonders why. :-)
--
73, Cecil, http://www.qsl.net/w5dxp

216. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 16:36:33 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpjhuh$8v3$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65577

> Where is the ground for that 52 ohm resistor?
> --
> 73, Cecil

==

Really Cecil, you shouldn't ask awkward questions like that.

You might gain the reputation of being a wicked troller.

On the other hand, it cannot be denied, your question is apt and could
be considered to be educational. Please continue!

Due to a certain person who ought to know better, I suffer from the
same misinterpretation of motives myself. <smiley>

Reg.

217. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 17:04:19 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpjjij$567$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65578

"Cecil Moore" wrote -

> Since it is 9dB down from a screwdriver or
> bugcatcher, one wonders why. :-)

==========

9dB is only one and a half S-units. (Ignoring Roy's ancient S-meter).

The Outbacker may still be well worth the money!

But that's just the Capitalist System which places Religion above
scientific facts. Sorry for becoming a little off topic.

A drop of South African Western Cape helps to keep things in
proportion.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

218. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 17:07:27 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1136480847.780406.254450@g44g2000cwa.googlegroups.com>
Source record: 65579

I'm a bit confused by your description. Is this a folded dipole, 40 feet long, with an added resistor in the conductor which would normally be unbroken, inserted directly opposite the feedpoint? Or is it something else? Why not just a 40-foot-long center-fed doublet, with a tuner at the transmitter end? What bands do you want to use your antenna on? What do you want to accomplish with it? (DX, local, intermediate range, ...)

Cheers,
Tom

219. friends,please help me!!!!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 17:19:13 UTC
From: pcrkishan@gmail.com
Message-ID: <1136481553.458674.149950@g14g2000cwa.googlegroups.com>
Source record: 65580

Hi Friends,

I have two dish antennas at the roof of my apartment.They are lying abandoned
for many years.I want to make use of them.Can i receive any signals through them ? & If possible how to connect my computer to the dish receiver & monitor those signals?I dont have any idea about how to get started.Can any one give me a nice suggestion on how to utilize them ?& whether any interesting activity can be carried out ? I require a step by step complete instruction to carry out all the required activities.Please guide me !!!

220. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 17:34:06 UTC
From: Ted <ted@trufflesdad.plus.com>
Message-ID: <43bd588b$0$63054$ed2e19e4@ptn-nntp-reader04.plus.net>
Source record: 65581

Cecil Moore wrote:

> Ted wrote:
>> I have about 40 feet of garden to erect an antenna....Could anyone tell
>> me if I took 2 20 feet length of twin ladder and shorted the ends
>> fed one side of the dipole with twin ladder and connected a 52 ohm
>> resistor across the other side ...
>
> Where is the ground for that 52 ohm resistor?

The feed goes to the centre..The ends are strapped together and the resistor
connects between the free ends opposite the feed connection...
--
Regards
Ted Wager
Using Debian Linux

221. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 18:19:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Eqdvf.10374$oW.755@newssvr11.news.prodigy.com>
Source record: 65582

Ted wrote:

> Cecil Moore wrote:
>
>>Ted wrote:
>>>I have about 40 feet of garden to erect an antenna....Could anyone tell
>>>me if I took 2 20 feet length of twin ladder and shorted the ends
>>>fed one side of the dipole with twin ladder and connected a 52 ohm
>>>resistor across the other side ...
>>
>>Where is the ground for that 52 ohm resistor?
>
> The feed goes to the centre..The ends are strapped together and the resistor
> connects between the free ends opposite the feed connection...

I'm afraid we need a schematic. Is this correct?

```
20ft 20ft
+-------------------FP------------------+
| 52 ohm resistor
+-------------------FP------------------+
```

--
73, Cecil, http://www.qsl.net/w5dxp

222. Re: friends,please help me!!!!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 18:21:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Rsdvf.10376$oW.943@newssvr11.news.prodigy.com>
Source record: 65583

pcrkishan@gmail.com wrote:
> I have two dish antennas at the roof of my apartment.They are lying
> abandoned for many years.

Are they for receiving geostationary satellites?
--
73, Cecil, http://www.qsl.net/w5dxp

223. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 19:09:23 UTC
From: Ted <ted@trufflesdad.plus.com>
Message-ID: <43bd6ee1$0$2691$ed2619ec@ptn-nntp-reader02.plus.net>
Source record: 65584

Cecil Moore wrote:

> Ted wrote:
>
>> Cecil Moore wrote:
>>
>>>Ted wrote:
>>>>I have about 40 feet of garden to erect an antenna....Could anyone tell
>>>>me if I took 2 20 feet length of twin ladder and shorted the ends
>>>>fed one side of the dipole with twin ladder and connected a 52 ohm
>>>>resistor across the other side ...
>>>
>>>Where is the ground for that 52 ohm resistor?
>>
>> The feed goes to the centre..The ends are strapped together and the
>> resistor connects between the free ends opposite the feed connection...
>
> I'm afraid we need a schematic. Is this correct?
>
> 20ft 20ft
> +-------------------resistor------------+ |
connected connected
> +-------------------FP------------------+
>
Like so...Ends strapped and r at centre opposite feed...
--
Regards
Ted Wager
Using Debian Linux

224. Re: FM transmitter in a vehicle

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 19:36:20 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1136489780.764599.324530@g14g2000cwa.googlegroups.com>
Source record: 65585

Thanks for the informative explanation! If you can direct me to a copy
of the NASA papers, then that would be an interesting read.

225. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 19:45:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <NHevf.44216$BZ5.3369@newssvr13.news.prodigy.com>
Source record: 65586

Ted wrote:
>>I'm afraid we need a schematic. Is this correct?
>>
>> 20ft 20ft
>>+-------------------resistor------------+ |
>
> connected connected
>
>>+-------------------FP-----------------+

OK, close to a T2FD. Here are the formulas for such an antenna.

http://www.hard-core-dx.com/nordicdx/antenna/wire/t2design.html

Looks like yours would be resonant around 8.2 MHz.
--
73, Cecil, http://www.qsl.net/w5dxp

226. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 20:14:34 UTC
From: Ted <ted@trufflesdad.plus.com>
Message-ID: <43bd7e27$0$63091$ed2e19e4@ptn-nntp-reader04.plus.net>
Source record: 65587

Cecil Moore wrote:

> Ted wrote:
>>>I'm afraid we need a schematic. Is this correct?
>>>
>>> 20ft 20ft
>>>+-------------------resistor------------+ |
>>
>> connected connected
>>
>>>+-------------------FP------------------+
>
> OK, close to a T2FD. Here are the formulas for such an antenna.
>
> http://www.hard-core-dx.com/nordicdx/antenna/wire/t2design.html
>
> Looks like yours would be resonant around 8.2 MHz.

Thanks very much for the info and the address..
--
Regards
Ted Wager
Using Debian Linux

227. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 20:59:34 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <632rr1lc8kcupagcrp7tb5kg4cm3kvofvq@4ax.com>
Source record: 65588

On Thu, 05 Jan 2006 15:30:56 GMT, Cecil Moore <mycall@arrl.net> wrote:

>jawod wrote:
>
>> I will assume that balanced (air) feedline is homebrew. What
>> recommendations are there for spacing between the twin lines? Number of
>> spacers per foot? If homebrew, how to keep spacers from
>> migrating...will small wire "stays" modify feedline characteristics?
>
>For all-HF-band operation with relatively high SWRs, the
>spacing doesn't much matter. 2"-6" is a practical range.
>Spacer spacing depends upon wind conditions. Two foot
>spacing seems reasonable at my QTH. Some spacers pinch

Did you really mean two foot spacing. This imperial measurement system
can be a bit tricky sometimes.

>the insulation on the feedline and thus stay in place.
>Very small tie wraps could also be used.
--

228. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 21:08:39 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <rVfvf.9093$UF3.2328@newssvr25.news.prodigy.net>
Source record: 65589

Owen Duffy wrote:
> Did you really mean two foot spacing?

Two foot spacing between spacers, not between wires.
I tried 4 foot spacing at first and it twisted in
the wind so I installed twice as many spacers.
--
73, Cecil, http://www.qsl.net/w5dxp

229. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 21:35:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rr4922agp1acd@corp.supernews.com>
Source record: 65590

Reg Edwards wrote:
>
> 9dB is only one and a half S-units. (Ignoring Roy's ancient S-meter).
>
> The Outbacker may still be well worth the money!
>
> But that's just the Capitalist System which places Religion above
> scientific facts. Sorry for becoming a little off topic.
>
> A drop of South African Western Cape helps to keep things in
> proportion.

9 dB is also the gain of a good long-boom 4 element Yagi over a dipole.
You'd have to drink more than a spot of the wine to not see the difference.

Roy Lewallen, W7EL

230. Re: friends,please help me!!!!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 21:41:36 UTC
From: Topaz305RK <k7sam@arrl.net>
Message-ID: <0_Sdndmk56UIDyDeRVn-gw@vnet-inc.com>
Source record: 65591

```
1 2 3 4 5 6 7 8 9 10
/
/
/
/
/
/
/
/
TROLL-O-METER
```

231. GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 21:48:22 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <dpk46e01m06@news4.newsguy.com>
Source record: 65592

Anyone have experience with these mounts?

http://www.geotool.com/antmount.htm

As you see from their website, the mounts are mounted into the stake holes in the sides of a pickup bed. Anyone here used these mounts? What was your experience? What truck? How difficult/easy was the installation? Has the mount lasted?

Thanks.

232. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 22:53:06 UTC
From: mcalhoun@ksu.edu
Message-ID: <dpk80i$96m@unix1.cc.ksu.edu>
Source record: 65593

>>I will assume that balanced (air) feedline is homebrew....
>If you can support the center of the dipole, weight is not
>as much concern as if you cannot support it. With too heavy
>a ladder line, your dipole may resemble a Y.

If the center of the dipole is NOT supported, I've found the worst problem
is the ladderline breaking -- from flexing caused by wind, etc. -- just
below where it is connected to the antenna. My current dipole has a center
support, but I've read that making the last section(s) of ladder-line out
of stranded wire will reduce the flex-breaking problem.
--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

233. Re: Cobra multiband dipole (linear loaded) help pse

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 23:04:20 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1136502260.697186.85760@g43g2000cwa.googlegroups.com>
Source record: 65607

Paladin:
I have been using the Cobra ultra-lite antenna since
the fall season. I had to cut
the feedline to 80ft. of 450 ladderline,and then add a good 4/1 balun
at the window,and then
i had to add 50ft. of good grade coax to my T-network tuner.
I can tune all of 160 with no problems. I also can use
the amp, about 4-500watts
output WITH no sparks or rf on equiptment. I'm on the 2nd floor
here. There were some
"growing" pains at first,but no it's doing fine. It gets out rather
well,with or without the amp.
I'm still a bit confused though. I still seem to NEED that
feedline LENTH. TOTAL.....
80ft. of L.L. the balun,and then 50ft. of coax. That's 140ft.
total. Works great,though !

73's, Paladin

234. Re: GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 23:13:40 UTC
From: nx7u <nx7u@cox.net>
Message-ID: <1136502820.617475.69730@g49g2000cwa.googlegroups.com>
Source record: 65594

I've had three of them in my F-150 for about 6 years now and they work
great. I would recommend them w/o hesitation.
Scott NX7U
http://members.cox.net/nx7u

235. Re: GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-05 23:29:27 UTC
From: "M.M." <nobody@nowhere.com>
Message-ID: <BYhvf.6952$JT.173@fed1read06>
Source record: 65595

Joe S. wrote:
> Anyone have experience with these mounts?
>
> http://www.geotool.com/antmount.htm
>
> As you see from their website, the mounts are mounted into the stake holes
> in the sides of a pickup bed. Anyone here used these mounts? What was your
> experience? What truck? How difficult/easy was the installation? Has the
> mount lasted?
>

I've had one on my Ford Ranger for several years with a 10M hamstick. It worked just fine. It was fairly easy to install...I had to remove the taillight assy to get access to the bottom of the pocket but that was not a big deal. I also had to drill a hole in the bottom of the pocket and needed a drill extension to reach but that wasn't too big a deal either. Altho the hamstick probably didn't tax it much, it seems to be a pretty rugged unit and seems to me to be a great idea. It's held up fine for quite a while (can't remember when I bought it) but I just removed it a few weeks ago when I gave the truck to my kid. It got a little rusty on top where the hamstick screws in but the rest of it is aluminum so won't rust. I'd certainly recommend it based on my experience with it. If the one I have will fit your truck, I'd make you a deal on it...

73... Mark AA7TA

236. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 00:48:55 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <zO2dnaktKvjulyDeRVn-vg@comcast.com>
Source record: 65596

Owen Duffy wrote:
> On Thu, 05 Jan 2006 15:30:56 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>
>>jawod wrote:
>>
>>
>>>I will assume that balanced (air) feedline is homebrew. What
>>>recommendations are there for spacing between the twin lines? Number of
>>>spacers per foot? If homebrew, how to keep spacers from
>>>migrating...will small wire "stays" modify feedline characteristics?
>>
>>For all-HF-band operation with relatively high SWRs, the
>>spacing doesn't much matter. 2"-6" is a practical range.
>>Spacer spacing depends upon wind conditions. Two foot
>>spacing seems reasonable at my QTH. Some spacers pinch
>
>
> Did you really mean two foot spacing. This imperial measurement system
> can be a bit tricky sometimes.

50 cm, then

>
>
>>the insulation on the feedline and thus stay in place.
>>Very small tie wraps could also be used.
>
> --

237. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 01:05:35 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <r5grr1hrktgoa8ralh65c3fehbfmijt41e@4ax.com>
Source record: 65597

On Thu, 05 Jan 2006 19:48:55 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>Owen Duffy wrote:
>> On Thu, 05 Jan 2006 15:30:56 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>
>>
>>>jawod wrote:
>>>
>>>
>>>>I will assume that balanced (air) feedline is homebrew. What
>>>>recommendations are there for spacing between the twin lines? Number of
>>>>spacers per foot? If homebrew, how to keep spacers from
>>>>migrating...will small wire "stays" modify feedline characteristics?
>>>
>>>For all-HF-band operation with relatively high SWRs, the
>>>spacing doesn't much matter. 2"-6" is a practical range.
>>>Spacer spacing depends upon wind conditions. Two foot
>>>spacing seems reasonable at my QTH. Some spacers pinch
>>
>>
>> Did you really mean two foot spacing. This imperial measurement system
>> can be a bit tricky sometimes.
>
>50 cm, then

Well Amos, I misunderstood the two foot spacing to be wire spacing
rather than spacer spacing. Both spacings are discussed in the space
of one paragraph, and it is a little open to misinterpretation. I
thought he may have meant wire spacing and two inches rather than
feet... hence the reference to the measurement system. Cecil did clear
it up.

BTW, two foot is closer to 60cm (60.96cm).

Owen
--

238. Re: GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 02:56:22 UTC
From: Topaz305RK <k7sam@arrl.net>
Message-ID: <iJOdnViUs4PBQSDenZ2dnUVZ_sqdnZ2d@vnet-inc.com>
Source record: 65598

Have had two mounted in an F-250 Super Duty. Had them mounted in an F-250 light duty before that. Have been using a pair of hamsticks on them up until last year. Last year I put a High Sierra SideKick on the left side of the pickup and used an 80 meter hamstick on the right. Can't get the SideKick to tune on 80 meters, it is supposed to but have not had any luck with it yet. Still playing with making that work.

The mounts fit as advertised and heavy enough to handle just about anything you want to mount on them. Easy to install with standard hand tools for the most part. One reply said they needed a drill bit extension, true if you drill from the top. If you come up through from the bottom you won't need an extension.

I did make a special tool to make things a bit easier however. Instead of using a open end wrench to tighten the bolt from the bottom I took a box end wrench, cut it in half so it fit better while tightening and then cut a slot in it for the coax to pass through. Just seemed to work better and I keep it in the pick up in case I need to tighten the bolt or do work on the mount.

Have been real happy with mine.

Sam - K7SAM

239. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 02:57:42 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpkmb6$87k$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65599

"Roy Lewallen" wrote -
> Reg Edwards wrote:
> >
> > 9dB is only one and a half S-units. (Ignoring Roy's ancient
S-meter).
> >
> > The Outbacker may still be well worth the money!
> >
> > But that's just the Capitalist System which places Religion above
> > scientific facts. Sorry for becoming a little off topic.
> >
> > A drop of South African Western Cape helps to keep things in
> > proportion.
>
> 9 dB is also the gain of a good long-boom 4 element Yagi over a
dipole.
> You'd have to drink more than a spot of the wine to not see the
difference.
>
==========

Roy, you have the unfortunate habit of changing the subject in the middle of a discussion in the forlorn hope of it not being noticed.

What have 4-element yagis to do with Outbackers?

By switching to Chinese "Great Wall" white wine I can make my S-meter read whatever I fancy. You ought to try some!

But perhaps you are a teetotaller who has never had the pleasure. If in fact you are indeed a teetotaller, then, I must admit, you deserve congratulations for having evaded the 'demon' drink.

It's all in the genes, anyway! I acquired it from my Grandmother.

Reg.

240. Re: GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 02:58:59 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <dpkmcr04q0@news2.newsguy.com>
Source record: 65600

"M.M." <nobody@nowhere.com> wrote in message
news:BYhvf.6952$JT.173@fed1read06...
> Joe S. wrote:
>> Anyone have experience with these mounts?
>>
>> http://www.geotool.com/antmount.htm
>>
>> As you see from their website, the mounts are mounted into the stake
>> holes in the sides of a pickup bed. Anyone here used these mounts? What
>> was your experience? What truck? How difficult/easy was the
>> installation? Has the mount lasted?
>>
>
> I've had one on my Ford Ranger for several years with a 10M hamstick. It
> worked just fine. It was fairly easy to install...I had to remove the
> taillight assy to get access to the bottom of the pocket but that was not
> a big deal. I also had to drill a hole in the bottom of the pocket and
> needed a drill extension to reach but that wasn't too big a deal either.
> Altho the hamstick probably didn't tax it much, it seems to be a pretty
> rugged unit and seems to me to be a great idea. It's held up fine for
> quite a while (can't remember when I bought it) but I just removed it a
> few weeks ago when I gave the truck to my kid. It got a little rusty on
> top where the hamstick screws in but the rest of it is aluminum so won't
> rust. I'd certainly recommend it based on my experience with it. If the
> one I have will fit your truck, I'd make you a deal on it...
>
> 73... Mark AA7TA

Thanks to all who answered -- I really appreciate your comments.

Mark:

Your experience is especially relevant as I have just purchased a used Mazda
B4000 -- basically a Ranger with a Mazda nameplate. I lost my 16-year-old
Nissan pickup along with an FT-857D in Hurricane Katrina (go to
www.schlatter.org to see some ugly photos) and am replacing it with the
Mazda. I rescued the ASAT-120 from the hurricane and bought a new FT-857
last week; I plan to install two antennas on the truck, dual-bander for 2
and 450 and the ATAS-120, will put them in the rear stake holes.

Thanks again.

73,
Joe

241. Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 03:10:45 UTC
From: kiddi@marel.is
Message-ID: <1136517045.065705.123740@g44g2000cwa.googlegroups.com>
Source record: 65608

Hello:

I am contemplating a half-wave wire antenna for the 160m band and would end-feed it against my roof as a counterpoise. If the wire length is carefully trimmed I should get a high feedpoint resistance with negligible reactance. Then comes the question of how to match this to a 50 Ohm system.

The standard approach is using a parallel LC circuit and either make a tap or a link for the 50 Ohm connection. In this case, how should I select the L and C, as there are multiple choices leading to the same resonance frequency but with different Q values. Any suggestions?

Or, would another matching network be more desirable, for example in terms of loss? An L-network might do the job, but it is not immediately clear to me if it would have any advantages or disadvantages over the parallel circuit. Any comments?

I will be running substantial power into the antenna, so it is important that the solution does not result in excessive losses (heat) or voltages (although this will probably be inevitable at the feedpoint).

73 - Kris, TF3KX

242. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 04:03:18 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9742CC01DC572doldridgsprintca@64.59.135.159>
Source record: 65601

chuck <nospam@nospam.com> wrote in
news:Byxuf.2053$%W1.241@newsread2.news.atl.earthlink.net:

> Is it not true that if the currents on the transmission line are
> unbalanced (i.e., unequal on the two conductors) then the transmitter
> must already be connected to ground? If not, what is the path of the
> differential current?

There's the rub, you see. It's RF and, on some frequencies, standing waves
don't NEED to feed current to a ground for there to be common mode currents
on the line. But yes, whatever current is required at the end of the
transmission line will seek to ground itself through the radio.

My amp had the output coil center-tapped to RF ground and the feedlines
were tapped off it an equal amount on either side.

--
Dave Oldridge+
ICQ 1800667

243. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 04:08:43 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9742CCED0A4CFdoldridgsprintca@64.59.135.159>
Source record: 65602
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Roy Lewallen <w7el@eznec.com> wrote in
news:11rlqiv2po14n6d@corp.supernews.com:

> Dave Oldridge wrote:
>>
>> Still, if the antenna is TRULY balanced (a situation that only rarely
>> actually happens), you won't get common-mode currents.
>
> That's true only if by "balanced" you mean that the two feedline
> conductors carry equal and opposite currents. In that case, common
> mode current is zero by definition. But if you really mean
> symmetrical, as most amateurs do when they say "balanced", you
> certainly can have common mode current.

No, I mean ELECTRICALLY balanced. And with the feedline at right angles to the antenna so that it doesn't pick up anything by induction. It's a tricky thing to do, yet back in the old days hams used to feed dipoles or extended double zepp antennas with open wire line and not get much RF in the shack. I know mine didn't. I was putting nearly 700 watts into the antenna and you could touch the amp chassis without any RF burns. Didn't have the fancy tools I have now for testing things, but still managed a good, clean and loud CW signal from an angled dipole. Worked a lot of DX on 75 with that antenna, including a nightly sked with Midway Is. for traffic (from Vancouver, BC.).

--
Dave Oldridge+
ICQ 1800667

244. Re: Antenna spacing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 04:10:17 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9742CD30AC9D2doldridgsprintca@64.59.135.159>
Source record: 65603

"Ralph Mowery" <rmowery28146@earthlink.net> wrote in
news:jHEuf.1890$ZA2.483@newsread1.news.atl.earthlink.net:

>
> "Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message
> news:Xns973F42AD4851doldridgsprintca@64.59.135.159...
>> Chris W <1qazse4@cox.net> wrote in
>> news:IT3tf.45644$ih5.19066@dukeread11:
>>
>> > I want to put a short 2 meter yagi and a long 70cm yagi on the same
>> > vertical mast. The 70cm will be a horizontally polarized, center
>> > mounted 17' boom and the 2 meter will be a vertically polarized,
>> > end mounted 6 foot boom. How far apart do they need to be? I will
>> > only be transmitting with one at a time but one could be receiving
>> > and the other transmitting, the 70cm will be for ATV receive only
>> > for now.
>>
>> A good rule of thumb is to separate them by at least a half-wave at
>> the lowest frequency. In this case that means about a meter (39")
>> apart.
>>
>>
> Sofar all the answers are assuming the question is will one antenna
> affect the other antenna. One other thing to look at is will the
> transmitter 'kill' the receiver of the other rig ?

Indeed, though not too likely since the frequencies are a fair bit apart.

--
Dave Oldridge+
ICQ 1800667

245. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 04:43:53 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9742D2E3417BCdoldridgsprintca@64.59.135.159>
Source record: 65604

Ted <ted@trufflesdad.plus.com> wrote in news:43bd1032$0$82676
$ed2619ec@ptn-nntp-reader03.plus.net:

>
>
>
> I have about 40 feet of garden to erect an antenna....Could anyone tell
> me if I took 2 20 feet length of twin ladder and shorted the ends
> fed one side of the dipole with twin ladder and connected a 52 ohm
> resistor across the other side so the tx would see a match would be
> better than feeding a 40 foot endfed through an atu...
> My thinking is that most of the small antenna on the market are just
> dummy loads with a small amount of wire attached and appear to work so
> would my 40 feet work better.. ??

If you're looking for transmit efficiency, then a resistor is not going to help you except to keep the standing waves down. You don't, in practice want such a resistor to be dissipating more than about half your power. Even that much is a three decibel loss (about half an S unit).

If it was my space, I'd start as high as I could get at one end and run a sloping dipole with 300-ohm or 450-ohm feeder to the atu. Make sure your atu has a 4:1 balun in it or get a balun that can give you at least this ratio. And just feed the nice sloper on as many bands as you can tune it! It won't be earth-shaking on 80m and will probably wimp out on 160, but I bet it would be tolerably good on 40 and really decent on 30 and up.

Dress the feedline away from the main wire at right angles and twist it a bit. Make sure to follow proper line-dressing procedures where you bring it into the house (or use a 4-1 balun and run coax the last bit). And fiddle with the length of the lower arm of the dipole until you get no common-mode antenna currents on the feeder, say on 30m. That should do it.

--
Dave Oldridge+
ICQ 1800667

246. Re: using an HP 8405A to measure SWR

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 06:24:54 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <T_SdncpxZ8KkkCPeRVn-jw@comcast.com>
Source record: 65605

I now have use of a b-directional coupler for HF and would like to perform the following 'tests' however I do not understand them. Can you explain the last a different way. I don't understand "two 50 Ohm loads in parallel with the stub".

Tests of stubs are now clearly reading correct for various lengths across frequencies. That is once the 1/4 wave is determined the next odd and even is very predicable.

Thanks,
Dan

> Don't you need to measure some "known" loads. Why not try a 50 ohm
> load tee'd to a s/c stub (quarter wave at a known frequency) and see
> if you get the predictable results at different frequencies around
> resonance. Then try two 50 ohm loads in parallel with the stub. (339mm
> of RG58C/U should have a Z of around 6000+j0 ohms at around 146MHz, at
> half that frequency it should be 0.85+j50, etc...

247. Re: using an HP 8405A to measure SWR

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 06:48:24 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <eg3sr19dseg8sv3t2mes2nmibt0c943f68@4ax.com>
Source record: 65606

On Thu, 05 Jan 2006 22:24:54 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>I now have use of a b-directional coupler for HF and would like to perform the
>following 'tests' however I do not understand them. Can you explain the last a
>different way. I don't understand "two 50 Ohm loads in parallel with the stub".

Parallel two 50 ohm loads with a tee piece, then use another tee to
put the stub in parallel. The tees will be imperfect, but at HF, the
impact should not be major.

>
>Tests of stubs are now clearly reading correct for various lengths across
>frequencies. That is once the 1/4 wave is determined the next odd and even
>is very predicable.

Do you get the correct answers for 1/8, 3/8 wave stubs in parallel
with a 50 ohm load? (1/8 wave s/c stub has an impedance close to
0+jRo, and you need to put it in parallel with the dummy load, so
series equivalent is 25+j25. 25 ohms in parallel with 1.8 wave s/c
stub should be around 20+j10. Put a 25 ohm load at the end of a metre
of coax and check its transformation at different frequencies
(equivalent to quarter wave, eight wave etc) against your Smith Chart
prog.

They are some examples, work some out for what you have at hand.

Prove that your measurement system works on predictable loads.

Owen

>
>Thanks,
>Dan
>
>>
>> Don't you need to measure some "known" loads. Why not try a 50 ohm
>> load tee'd to a s/c stub (quarter wave at a known frequency) and see
>> if you get the predictable results at different frequencies around
>> resonance. Then try two 50 ohm loads in parallel with the stub. (339mm
>> of RG58C/U should have a Z of around 6000+j0 ohms at around 146MHz, at
>> half that frequency it should be 0.85+j50, etc...
>>
>>
--

248. MFJ974H

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 09:40:35 UTC
From: Peter <p_l_reed@hotmail.com>
Message-ID: <1136540435.263601.115880@o13g2000cwo.googlegroups.com>
Source record: 65528

Hi - just wonder if anyone has any comments on the MFJ 974H tuner, please. I am thinking of getting one to use with a 260' centre fed antenna and balanced line. It seems the ideal tuner to use having a direct balanced output and not one via a balun.

Many thanks,

Peter

249. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 11:06:32 UTC
From: "Harold E. Johnson" <w4zcb@mchsi.com>
Message-ID: <Yasvf.710688$xm3.581177@attbi_s21>
Source record: 65610

> The standard approach is using a parallel LC circuit and either make a
> tap or a link for the 50 Ohm connection. In this case, how should I
> select the L and C, as there are multiple choices leading to the same
> resonance frequency but with different Q values. Any suggestions?
>
> Or, would another matching network be more desirable, for example in
> terms of loss? An L-network might do the job, but it is not
> immediately clear to me if it would have any advantages or
> disadvantages over the parallel circuit. Any comments?
>
> I will be running substantial power into the antenna, so it is
> important that the solution does not result in excessive losses (heat)
> or voltages (although this will probably be inevitable at the
> feedpoint).
>
> 73 - Kris, TF3KX

GM Kris

I use an end fed, inverted L half wave on 160 meters on 160, 80 and 40 meters where it has a feed impedance of about 2600, 1600 and 700 Ohms respectively. This allows a remote tuned L network to be used for a match to 50 Ohms on all 3 bands without need for switching the capacitor from end to end of the inductor. My inductor is a piece of 2-1/2 inch miniductor, tap switched with a motor driven switch, and a motor driven vac variable. It allows a below 1.3:1 match across the entire band on all 3 bands and has been a very effective HF antenna for some 15 years. The bottom of the antenna ties to a control box thru a fairly small ceramic feedthru, (maybe 2 inches long) and Voltage has never been a problem even with 1500 Watts out. Fed against a 90 foot well casing that just happens to be in the right place, and a counterpoise under the flat top.

When you don't KNOW that your ground is zero Ohms, feed as little current into it as possible!

Regards
W4ZCB

250. Re: Cobra multiband dipole (linear loaded) help pse

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 13:59:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <TIuvf.9429$UF3.5422@newssvr25.news.prodigy.net>
Source record: 65611

Paladin wrote:
> I'm still a bit confused though. I still seem to NEED that
> feedline LENTH. TOTAL.....
> 80ft. of L.L. the balun,and then 50ft. of coax. That's 140ft.
> total. Works great,though !

When the length of 50 ohm coax to the 50 ohm source
has a large effect, that is usually not good news.
We are usually aiming for a low SWR on that section
of feedline and if we are successful, length doesn't
much matter. Here's what can be happening:

The impedance looking into the ladder-line with an
SWR of 18:1 is 25 ohms because that point is a current
maximum point. The 4:1 balun takes that impedance
down to 6.25 ohms, a lossy condition for the tuner and
an impedance it may not be able to match. 0.15 WL of 50
ohm coax (SWR = 50/6.25 = 8:1) will transform that 6.25
ohms up to 17+j65 ohms, an impedance the tuner can handle.
Have you measured the SWR on the coax on the antenna
side of the tuner?

If one doesn't know what impedance is being seen by the
balun, a 4:1 balun may not be the best choice. It may
even be a bad choice.
--
73, Cecil http://www.qsl.net/w5dxp

251. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 14:18:21 UTC
From: Ted <ted@trufflesdad.plus.com>
Message-ID: <43be27c8$0$82636$ed2619ec@ptn-nntp-reader03.plus.net>
Source record: 65609

Ted wrote:

>
>
>
> I have about 40 feet of garden to erect an antenna....Could anyone
> tell me if I took 2 20 feet length of twin ladder and shorted the
> ends fed one side of the dipole with twin ladder and connected a 52
> ohm resistor across the other side so the tx would see a match would
> be better than feeding a 40 foot endfed through an atu...
> My thinking is that most of the small antenna on the market are just
> dummy loads with a small amount of wire attached and appear to work
> so would my 40 feet work better.. ??
>
Many thanks to all who replied to my query...

--
Regards
Ted Wager
Using PCLinuxos

252. Re: using an HP 8405A to measure SWR ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 17:21:53 UTC
From: Walter Maxwell <w2du@earthlink.net>
Message-ID: <uj9tr1hk41p9gaadtvcdatam3i5iujser5@4ax.com>
Source record: 65612

Reg, I always thought SWR meant Short Wave Radio.

Walt, W2DU

>
>. . . . . and using the wrong name for an SWR meter often results in a
>concept gap.
>----
>Reg.
>

253. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 19:16:30 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11rtggi4j9pusbb@corp.supernews.com>
Source record: 65613

An parallel LC network like you describe is usually made with L and C having reactances of roughly 200 ohms or so. That generally gives a loaded Q that results in good efficiency. As you suspect, the voltage will be high at the end of the antenna no matter how you feed it.

Roy Lewallen, W7EL

kiddi@marel.is wrote:
> Hello:
>
> I am contemplating a half-wave wire antenna for the 160m band and would
> end-feed it against my roof as a counterpoise. If the wire length is
> carefully trimmed I should get a high feedpoint resistance with
> negligible reactance. Then comes the question of how to match this to
> a 50 Ohm system.
>
> The standard approach is using a parallel LC circuit and either make a
> tap or a link for the 50 Ohm connection. In this case, how should I
> select the L and C, as there are multiple choices leading to the same
> resonance frequency but with different Q values. Any suggestions?
>
> Or, would another matching network be more desirable, for example in
> terms of loss? An L-network might do the job, but it is not
> immediately clear to me if it would have any advantages or
> disadvantages over the parallel circuit. Any comments?
>
> I will be running substantial power into the antenna, so it is
> important that the solution does not result in excessive losses (heat)
> or voltages (although this will probably be inevitable at the
> feedpoint).
>
> 73 - Kris, TF3KX
>

254. Re: Transmission Line Reflections

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 20:09:28 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpmipo$461$1@engnntp2.cig.mot.com>
Source record: 65614

Wayne,

*** Imbedded comments:

"W. Watson" <wolf_tracks@invalid.com> wrote in message
news:q5Yuf.3158$Hl6.836@newsread3.news.pas.earthlink.net...

> Roy Lewallen wrote:
>
> > W. Watson wrote:
> >
> >> It seems reasonable that if I have an open ended transmission line
> >> that the current would reflect back and change phase. After all, the
> >> electrons at the end have nowhere to go but back down the line.
> >> However, the voltage is a different matter. There is no phase reversal
> >> (or polarization change) There doesn't seem to be an intuitive reason
> >> for this. However, if one examines the equations for current and
> >> capacitive voltage, then it falls out of the math. Still, where is the
> >> non-math that indicates this is true?
> >>
> >> Now suppose instead the line is short circuited. The voltage returns
> >> down the line, and the current does not.
> >
> >
> > That's not true. Both are totally reflected.
> Thanks for the response. Why is any wave reflected at all? In the open
case,
> I can easily visualize the electrons (drifting cloud) having nowhere to go
> when they reach the end of the line, so the current literally has to go in
> reverse. Perhaps the shorted line represents a reactive circuit to the
> incident wave?

Wayne,

Welcome to the wide-world of the inquisitive.

*** Please understand, I'm not trying to be, snooty, a wise-guy or know
it-all. I'll say that I think you are trying to use an intuitive view when
you don't have the proper background/experience to base the intuition on. I
think that you are trying to use "standard" concepts when trying to
understand waves. Intuition comes from some kind of experience that tells
us how things work, but, in regular life, we only gain experience from
mostly "normal" things. Waves are a bit different and it takes some new
experiences to gain that intuition. That's why they teach those wave tanks
in high school -- it give us some understanding of this wave phenomenon.

I can liken it to trying to understand multiplication when all you know is addition and subtraction. Moving to multiplication or division isn't really hard, it just takes some new concepts we hadn't seen before,. However, once we understand it, it's "simple" and the concepts become second nature. We need to realize that some NEW concepts are needed to understand waves, in general.

On to waves... Someone may be able to use pure math and "explain" waves, but there are more intuitive (gut feel) ways which help. Besides, I'd have to work really hard trying to reconstruct all that math from college. (I couldn't solve a triple integral now to save my life)

Waves can be hard to explain in terms of ONLY current and voltage - when we try to use our purely physical experience. I work hard to form mental models of how electronics works and found that there are some areas that are hard to understand with a simple Newtonian understanding (though I do my best to keep my "mental models", as I call my understanding, as simple as possible) - and it has served me well when trying to understand this stuff and explain it to others.

The best analogy for waves is waves on water. Thought there is a major shortcoming in that electromagnetic waves in space don't need a medium to carry them, the rest works out pretty well. On a transmission line there are waves and they behave like water waves.

Some important concepts to possibly help.

Water has mass and it takes a force to move it.

When a force (a rock or wind) pushes on the water, it moves in a certain way - very analogous to electrical current.

In short, a body of water has something analogous to a characteristic impedance. "Push" it with a voltage and it responds with an amount of current according to the analogous "ohm's law" of water.

When the water in one place moves, it pushes on the next bit of water. That push causes a motion in a manner in a way only water can respond (with its "ohm's law"). This is what makes waves happen. There *IS* "something" moving along with that wave. Now put a wall in the water - the edge of the tank. The wave reflects--we CAN SEE it with our own eyes. While you can do some force, mass, acceleration and velocity math and make it all work out, I'll stop here.

Going more general on you here... Some time go I realized that thinking about water pushing on water leads to something like a "characteristic impedance" of water. This concept allows the idea of the motion of the water being transferred to adjacent bits of water and this leads to a wave "propagating" / traveling` over the water.

Now, with this in mind, whenever the stuff that is pushed on by the water does not respond just like water, something different happens. Since the two extremes are a short and open, it is reasonable to assume (and correct in a very general cense) that whatever does happen is somewhere between the

"open" and "short" behavior.

Unfortunately, with water, it is hard to come up with both a short and an open, so this model falls apart a bit. However, the Slinky toy, stretched out on the floor can be observed and have either a short or open placed at the end---as well as other various "loads".

For the "short" hook it to a solid, stationary object (a wall). For the open, put a long string between the far (load) end and the wall. For the others, you can put dashpots and other springs (of different size and therefore "characteristic" impedance).

I know this is a digression off your question, but I think you should study waves in other media which are more directly observable to feel better about transmission line waves.

Hence your following comment and Lew's explanation is how we look at it. There is a summing of things going on at the "load".
> >
> >> In this case, there doesn't seem to be any non-math or intuitive feel
> >> for why the short should cause this--either for voltage or current.
> >> Can one clue me in on what's really happening above (voltage) and here
> >> (voltage and current)? Inquiring minds want to know.
> >
> >
> > The math is dictated by the boundary conditions, and those can be used
> > to gain an intuitive feel for what's happening. When both forward and
> > reflected waves are present, the voltage and current at any point on the
> > line are the sum of the forward and reverse waves. When the line is open
> > circuited, the current at the end of the line is of course zero. So the
> > sum of the forward and reverse current wave is zero at the end, and the
> > only way that can be is for the forward and reverse waves to be equal in
> > magnitude and out of phase.

*** Switching to voltage here, we realize that there is no such constraint on the voltage to be zero at the open, but what can it be? It's probably SOMETHING.. If we believe in waves and reflections, one possibility is that it is in phase, therefore the sum is double, but alas, I can't muster, at this time, an explanation of why in-phase. Perhaps someone has a better "mental model" that I.

> > Likewise, when the line is shorted, the
> > voltage is zero, and the only way that can happen is for the reverse
> > voltage wave to be equal in magnitude and opposite in phase to the
> > forward voltage wave.

*** Switching to current at the short, leads to my reasoning just like the above and the same lack of an "Intuitive" explanation.

Lew uses the characteristic impedance view below and that works for me, but then, I think I understand all this already! I think that if you 'believe', so to speak, in the Characteristic Impedance concept, this makes more "intuitive" sense. Good luck. Remainder un-edited for continuity.

73, Steve, K9DCI

> Yes, this makes sense that one can deduce the result from the boundary
> conditions. I'll stop here for the moment until I understand the answer to
> the question above.

> > Some confusion can result when discussing the reverse wave. The reverse
> > current wave can be, and usually is, defined as positive in the same
> > direction as the forward wave. If you use this definition, the current
> > changes phase at a shorted end, since the sum of the two current waves
> > has to equal zero when both are defined as being positive in the same
> > direction. However, you can also say that the current simply reverses
> > direction and remains the same in phase. Those two viewpoints are
> > equivalent. I've been using, and will continue to use, the convention
> > that the direction of positive current is toward the load for both
> > waves, for this discussion.
> >
> > At an open end, the forward and reverse voltages are equal and in phase,
> > and at a shorted end, the forward and reverse currents are equal and in
> > phase. This can be seen by realizing that the voltage/current ratio of
> > the forward wave is the same as for the reverse wave -- both equal the
> > line Z0, but because of the current convention, the sign of the current
> > reverses for the reflected wave. So we know that Vf/If = -Vr/Ir, where
> > If and Ir are defined as positive when flowing toward the load. Now
> > let's apply what we know about shorted ends to find what happens at an
> > open end. At an open end, we know that If = -Ir. Since Vf/If = -Vr/Ir,
> > it follows that Vr = Vf. Likewise, at an open end, we know that Vf =
> > -Vr, so from the same equation If = Ir.
> >
> > Roy Lewallen, W7EL
>
>
>
> Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
> (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
> Obz Site: 39° 15' 7" N, 121° 2' 32" W, 2700 feet
> --
> "I often quote myself - it adds spice to
> my conversation." - George Bernard Shaw
>
> Web Page: <home.earthlink.net/~mtnviews>

255. Re: friends,please help me!!!!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 21:38:49 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <RrBvf.47910$ih5.35356@dukeread11>
Source record: 65615

Topaz305RK wrote:

> 1 2 3 4 5 6 7 8 9 10
> /
> /
> /
> /
> /
> /
> /
> /
>TROLL-O-METER
>
>
If your going to do ascii art, might as well be a little more fancy :)

1 2 3 4 5 6 7 8 9 10
/
/
/
/
/
/
/
/
/
/
/
---TROLL-O-METER---

--
Chris W
KE5GIX

Gift Giving Made Easy
Get the gifts you want &
give the gifts they want
One stop wish list for any gift,
from anywhere, for any occasion!
http://thewishzone.com

256. Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 21:58:52 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <oeatr1hrg39mb6ra4963tuqesncht6qrh7@4ax.com>
Source record: 65616
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

Hi all,

I need a couple of accessories to enable me to make some phase
measurements with my HP network analyzer. I'd thought I could pick
these up on ebay easily enough, but note the lack of availably with
surprise and dismay.
I need to therefore contrive two precision parts:

Firstly, 50 ohm load that's essentially non-reactive up to 1.3Ghz.
Power handling only need be a few tens of miliwatts. N-type
connection.

Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
connections, again flat up to 1.3Ghz. No switching needed, thankfully.

If I can't source these parts elsewhere, how feasible is it to make
them up and can anyone point me to any designs on the web that might
fit the bill?

I'm aware that the introduction of any stray reactances into the
devices will render all subsequent measurements invalid so I need to
get these parts right. At least 1.3Ghz capability should be achievable
for a hobbyist with care.

Thanks,
P.
--

"What is now proved was once only imagin'd" - William Blake

257. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:08:50 UTC
From: Charles Schuler <charleschuler@comcast.net>
Message-ID: <0uSdncxYk_wbZSPeRVn-sw@comcast.com>
Source record: 65617
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

http://www.vistarf.com/pdf/vlc-040105.pdf

258. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:16:01 UTC
From: John_H <johnhandwork@mail.com>
Message-ID: <RSCvf.67$QR3.117@news-west.eli.net>
Source record: 65618
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

www.minicircuits.com can supply some of your needs as well.

259. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:16:58 UTC
From: Gary Cavie <m0jjh@despammed.com>
Message-ID: <MPG.1e290ac555a1fd629896a8@news.individual.net>
Source record: 65619
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

In article <oeatr1hrg39mb6ra4963tuqesncht6qrh7@4ax.com>,
pb@shove.your.spam.up.your.arse.atlanticstar.co.uk says...
> Hi all,
>
> I need a couple of accessories to enable me to make some phase
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>
> I'm aware that the introduction of any stray reactances into the
> devices will render all subsequent measurements invalid so I need to
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> for a hobbyist with care.
>
> Thanks,
> P.
>

Hi Paul,

Take a look at Mini-circuits (www.mini-circuits.com). They seem to stock
what you are after.

260. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:22:19 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <LYCvf.203520$V7.152282@news-server.bigpond.net.au>
Source record: 65620
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

http://www.minicircuits.com/

Have a range of splitters and loads.

Paul Burridge wrote:
> Hi all,
>
> I need a couple of accessories to enable me to make some phase
> measurements with my HP network analyzer. I'd thought I could pick
> these up on ebay easily enough, but note the lack of availably with
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> devices will render all subsequent measurements invalid so I need to
> get these parts right. At least 1.3Ghz capability should be achievable
> for a hobbyist with care.
>
> Thanks,
> P.

--

Kind Regards

David Huisman
General Manager

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A.C.N. 107 441 869

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NSW 2263, AUSTRALIA
Phone: 61-2-4393-3627
Fax : 61-2-4393-3685
Mobile: 61-413-715-986

261. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:26:39 UTC
From: Chris Jones <lugnut808@nospam.yahoo.com>
Message-ID: <11rtv0e2m530lfd@corp.supernews.com>
Source record: 65621
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

Paul Burridge wrote:

> Hi all,
>
> I need a couple of accessories to enable me to make some phase
> measurements with my HP network analyzer. I'd thought I could pick
> these up on ebay easily enough, but note the lack of availably with
> surprise and dismay.
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> connection.
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> connections, again flat up to 1.3Ghz. No switching needed, thankfully.
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> them up and can anyone point me to any designs on the web that might
> fit the bill?
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> I'm aware that the introduction of any stray reactances into the
> devices will render all subsequent measurements invalid so I need to
> get these parts right. At least 1.3Ghz capability should be achievable
> for a hobbyist with care.
>
> Thanks,
> P.

You can make a pretty good 50 Ohm termination with a PCB-mounting SMA connector. Cut off the centre pin of the PCB-end of the connector leaving 0.5mm or less protruding (careful of your eyes, the pin can go shooting off pretty fast, it's hard metal), and then solder two 0.1% 100 Ohm 0603 resistors between the centre pin and the outer (ground) part of the connector. The resistors should be diametrically opposite.

I made one with 1% resistors and got the following:
s11 < -30dB up to 6GHx and
s11 < -47dB up to 500MHz

It helps to tweak how flat you lie the resistors on the teflon at the back of the connector, but without a working VNA you just have to accept what you get.

If you want a termination with a N connector, then you could use a really good adapter with the SMA termination I mentioned above, or work out something similar with a N connector however I have never tried that since I mostly use SMA anyway.

I think a very accurate / flat power divider would be fairly hard to make well unless you can get boards made with microwave substrates. If you can work out your measurement setup such that the flatness etc of the divider is not so important, then that would help.

There's a guy in the UK selling a one input two output type power divider with N connectors and a 50 Ohm N termination on e-bay at the moment if that helps you.

Chris

262. Re: Crimp, Clamp or Solder?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:32:51 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <5cvtr1dst3ojuoshd5afq4sbn525oqcmpa@4ax.com>
Source record: 65622

On Fri, 23 Dec 2005 13:51:42 GMT, "Chuck S." <chuckwa3iac@verizon.net>
wrote:

>Clamp types have cause me problems over the years, stay away from them.
>Crimp type work ok in the shack but not out side for a long time. Solder it
>by far the best way to go. Another type that works good outside is
>compression clamps. The ones meant to be used with hard line. They cost
>more, but unless you like climbing up a 60 foot tower in a contest, they are
>worth the cost!

How about using clamp N-types *and* soldering them?? You'd have to
drill a hole or two in the outer casing for the solder, but wouldn't
it be the most secure solution?
--

"What is now proved was once only imagin'd" - William Blake

263. Re: Crimp, Clamp or Solder?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:41:20 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <ovvtr1hvfp4gai6dkca8hbnc2qnjmtvs2c@4ax.com>
Source record: 65623

On Sat, 24 Dec 2005 22:37:07 -0800, Bill Turner <noway@nohow.com>
wrote:

>Don't forget to add Loctite, spot weld, drop forge, nuclear laser,
>explosive forming, refractory conditioning, epoxy, RTV, sixteen
>layers of Scotch #33 tape and the Pope's blessing.

Naw.. Still doesn't meet Mil-Spec '88. :-)
--

"What is now proved was once only imagin'd" - William Blake

264. Re: Crimp, Clamp or Solder?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-06 23:44:41 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <f30ur15vfjglaqo3cqdapl22jreoe76ulg@4ax.com>
Source record: 65624

On Tue, 27 Dec 2005 19:00:57 GMT, "kd5sak" <kd5sak@sbcglobal.net>
wrote:

>Guess that's right, let's see now. Formula ! car wheels just have one big
>lug nut, don't they?
>

Pit-stop time is critical. You want to race a car that takes 6 guys
all fumbling in over- intimate proximity to change each wheel?
--

"What is now proved was once only imagin'd" - William Blake

265. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 01:09:25 UTC
From: bill.sloman@ieee.org
Message-ID: <1136596165.204061.154200@g43g2000cwa.googlegroups.com>
Source record: 65530

Chris Jones wrote:
> Paul Burridge wrote:
>
> > Hi all,
> >
> > I need a couple of accessories to enable me to make some phase
> > measurements with my HP network analyzer. I'd thought I could pick
> > these up on ebay easily enough, but note the lack of availably with
> > surprise and dismay.
> > I need to therefore contrive two precision parts:
> >
> > Firstly, 50 ohm load that's essentially non-reactive up to 1.3Ghz.
> > Power handling only need be a few tens of miliwatts. N-type
> > connection.
> >
> > Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
> > connections, again flat up to 1.3Ghz. No switching needed, thankfully.
> >
> > If I can't source these parts elsewhere, how feasible is it to make
> > them up and can anyone point me to any designs on the web that might
> > fit the bill?
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> > I'm aware that the introduction of any stray reactances into the
> > devices will render all subsequent measurements invalid so I need to
> > get these parts right. At least 1.3Ghz capability should be achievable
> > for a hobbyist with care.
> >
> > Thanks,
> > P.
>
> You can make a pretty good 50 Ohm termination with a PCB-mounting SMA
> connector. Cut off the centre pin of the PCB-end of the connector leaving
> 0.5mm or less protruding (careful of your eyes, the pin can go shooting off
> pretty fast, it's hard metal), and then solder two 0.1% 100 Ohm 0603
> resistors between the centre pin and the outer (ground) part of the
> connector. The resistors should be diametrically opposite.
>
> I made one with 1% resistors and got the following:
> s11 < -30dB up to 6GHx and
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>
> It helps to tweak how flat you lie the resistors on the teflon at the back
> of the connector, but without a working VNA you just have to accept what

> you get.
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> If you want a termination with a N connector, then you could use a really
> good adapter with the SMA termination I mentioned above, or work out
> something similar with a N connector however I have never tried that since
> I mostly use SMA anyway.
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> I think a very accurate / flat power divider would be fairly hard to make
> well unless you can get boards made with microwave substrates. If you can
> work out your measurement setup such that the flatness etc of the divider
> is not so important, then that would help.

Two SMD 100R resistors in parallel is good; six 300R resistors spread symmetrically around the centre pin would be better (if you can fit them in).

You can buy 50R terminating resistors on a circular alumina substrate with a hole in the middle, where the conducting pat runs from the (metalised) rim of the inner hole to the (metalised) circumference. Finding them isn't easy, but they do offer the theoretical minimum of inductance.

You should be able make a pretty accurate and flat power divider in a metal box between two bulk-head-mounted coax sockets by stringing together 0603 or 0805 0.1% SMD resistors with bits of 22swg wire in a neat and symmetrical birds nest. A fiddly job, and you'd probably want to use continuous solder seams to seal the box when you were finished to avoid creating a slot antena or two.

The 0.1% SMD resistors are available off the shelf from Farnell - IIRR you have buy them in multiples of five, but they aren't that expensive and if want to built a low-inductance symmetrical structure you need to put three or four resistors in parallel (six would be nicer, but you'd need to be a Jim Williams level artist with the soldering iron to keep it neat).

--
Bill Sloman, Nijmegen

266. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 02:40:27 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <a89ur1pofuoc2humjh38vcssaug6aa720f@4ax.com>
Source record: 65625
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Fri, 06 Jan 2006 22:58:52 +0100, Paul Burridge
<pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote:

>Hi all,
>
>I need a couple of accessories to enable me to make some phase
>measurements with my HP network analyzer. I'd thought I could pick
>these up on ebay easily enough, but note the lack of availably with
>surprise and dismay.
>I need to therefore contrive two precision parts:
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>Firstly, 50 ohm load that's essentially non-reactive up to 1.3Ghz.
>Power handling only need be a few tens of miliwatts. N-type
>connection.

http://cgi.ebay.com/HP-909A-50-Ohm-Coaxial-Termination_W0QQitemZ7577035113QQcategoryZ26237
QQssPageNameZWDVWQQrdZ1QQcmdZViewItem
>
>Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
>connections, again flat up to 1.3Ghz. No switching needed, thankfully.

I must ask, what is the purpose of this?

267. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 05:07:02 UTC
From: Jim Yanik <jyanik@abuse.gov>
Message-ID: <Xns97441152B96Djyanikkuanet@129.250.170.85>
Source record: 65526

Chris Jones <lugnut808@nospam.yahoo.com> wrote in
news:11rtv0e2m530lfd@corp.supernews.com:

> Paul Burridge wrote:
>
>> Hi all,
>>
>> I need a couple of accessories to enable me to make some phase
>> measurements with my HP network analyzer. I'd thought I could pick
>> these up on ebay easily enough, but note the lack of availably with
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>>
>> Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
>> connections, again flat up to 1.3Ghz. No switching needed,
>> thankfully.
>>
>> If I can't source these parts elsewhere, how feasible is it to make
>> them up and can anyone point me to any designs on the web that might
>> fit the bill?
>>
>> I'm aware that the introduction of any stray reactances into the
>> devices will render all subsequent measurements invalid so I need to
>> get these parts right. At least 1.3Ghz capability should be
>> achievable for a hobbyist with care.
>>
>> Thanks,
>> P.
>
> You can make a pretty good 50 Ohm termination with a PCB-mounting SMA
> connector. Cut off the centre pin of the PCB-end of the connector
> leaving 0.5mm or less protruding (careful of your eyes, the pin can go
> shooting off pretty fast, it's hard metal), and then solder two 0.1%
> 100 Ohm 0603 resistors between the centre pin and the outer (ground)
> part of the connector. The resistors should be diametrically
> opposite.
>
> I made one with 1% resistors and got the following:
> s11 < -30dB up to 6GHx and

> s11 < -47dB up to 500MHz
>
> It helps to tweak how flat you lie the resistors on the teflon at the
> back of the connector, but without a working VNA you just have to
> accept what you get.
>
> If you want a termination with a N connector, then you could use a
> really good adapter with the SMA termination I mentioned above, or
> work out something similar with a N connector however I have never
> tried that since I mostly use SMA anyway.
>
> I think a very accurate / flat power divider would be fairly hard to
> make well unless you can get boards made with microwave substrates.
> If you can work out your measurement setup such that the flatness etc
> of the divider is not so important, then that would help.
>
> There's a guy in the UK selling a one input two output type power
> divider with N connectors and a 50 Ohm N termination on e-bay at the
> moment if that helps you.
>
> Chris

A two-output splitter,IIRC,uses 3 25 ohm resistors in a Y config.
Use a double-sided PCB for the ground plane between the three N connectors.

--
Jim Yanik
jyanik
at
kua.net

268. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 07:02:17 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1136617337.917831.305030@g14g2000cwa.googlegroups.com>
Source record: 65529

In older handbooks, they often say that the parallel LC circuit used to feed the end fed wire should replicate the output tank circuit of the transmitter.

I have an end fed inverted "L" for 40 meters that works really well. It's 32 feet vertical and 98 feet horizontal, with the far end 8 ft. off the ground.

I use a parallel tuned circuit at the base in a weatherproof box and it's fed with a 100 feet or so of RG 8 buried in PVC. The coax center conductor is tapped up a turn or two from the bottom of the coil.

I consider this a single band antenna, and I use it only for 40 meters.

John

269. Re: Crimp, Clamp or Solder?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 07:10:30 UTC
From: Russ <carlzomer@hotmail.com>
Message-ID: <39qur1lfeackmo61hfi0tk6q3de8ku7pbh@4ax.com>
Source record: 65527

On Sat, 07 Jan 2006 00:44:41 +0100, Paul Burridge
<pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote:

>On Tue, 27 Dec 2005 19:00:57 GMT, "kd5sak" <kd5sak@sbcglobal.net>
>wrote:
>
>
>>Guess that's right, let's see now. Formula ! car wheels just have one big
>>lug nut, don't they?
>>
>
>Pit-stop time is critical. You want to race a car that takes 6 guys
>all fumbling in over- intimate proximity to change each wheel?

NASCAR crews seem to do just fine with on man at each wheel. Each
wheel has five lug nuts.

R

270. Re: Transmission line help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 14:24:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vaQvf.3981$fb4.1628@newssvr14.news.prodigy.com>
Source record: 65531

moatesim@gmail.com wrote:
> I am self studying transmission lines and I can't figure out this
> problem. Given Z(r), Z_not, and 'd' you are asked to find Tau(d). To my
> understanding, Tau(d) is 1+ Z_r(normalized with Z_not) divided by (1 -
> Z_r(normalized by Z_not)). For the data I had, I don't get the phase of
> Tau(d) correct. I would really appreciate if you could point out where
> I am making the mistake or explain it to me the correct way to
> calculate Tau(d).

Different texts use different subscripts. Is Z(r) the load
impedance and Z_not the characteristic impedance? What is 'd'?
Are you using a Z-parameter analysis?

From "Fields and Waves in Communication Electronics", by Ramo,
Whinnery, and Van Duzer, page 28:

rho = (ZL-Z0)/(ZL+Z0) = Vref/Vfor

tau = 2*ZL/(ZL+Z0) = (Vfor+Vref)/Vfor

where rho is the voltage reflection coefficient and tau is the
voltage transmission coefficient. ZL is the load impedance and
Z0 is the characteristic impedance of the transmission line.
--
73, Cecil http://www.qsl.net/w5dxp

271. Re: MFJ974H

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 14:59:07 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%GQvf.9894$UF3.3820@newssvr25.news.prodigy.net>
Source record: 65532

Peter wrote:

> Hi - just wonder if anyone has any comments on the MFJ 974H tuner,
> please. I am thinking of getting one to use with a 260' centre fed
> antenna and balanced line. It seems the ideal tuner to use having a
> direct balanced output and not one via a balun.

There was some discussion about moving the balun from the output
of an unbalanced tuner to the input. It is generally accepted
that action will not improve things very much. The only difference
in that action and what MFJ has done is that, in the MFJ-974H,
there is some series capacitor impedance opposing the common mode
current. That series impedance varies with capacitor settings and
is therefore not constant.

The Johnson Matchboxes suppressed common mode current through link
coupling (no balun required). The MFJ-974H doesn't use link coupling
so the common mode current flows right through the tuning caps. And
the MFJ-974H does indeed have a balun function on the source side of
the network. It appears to be a w2du 1:1 choke balun. So the MFJ-974H
is not as good at choking common mode currents as the Johnson Matchbox
and not extremely superior to an unbalanced tuner with a w2du 1:1
choke balun on the output.

I'm not trying to discourage anyone but the MFJ-974H may not be an
extreme improvement over an unbalanced tuner with a w2du 1:1 choke-
balun on the output.
--
73, Cecil http://www.qsl.net/w5dxp

272. radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 15:47:01 UTC
From: Thierry <lombryt@hotmail.com>
Message-ID: <8545c34b738aa8f3099fdd2334602bc0.99986@mygate.mailgate.org>
Source record: 65533

Hi,

I received this message from a colleague but I cannot answer him. I d
not know these systems.
Could you help me ?

My company has installed a Radar Tower for Port survaillence. The tower
is about 50 meter height on top of the of a 3 stories building roof and
my office building just below the tower on the same level, 20 meter away
from the tower. At the same time, the surrounding is my working area (
Jetty Terminal for ships loading and unloading activities). I can say
that I'll be around that area 12 hours a day for another 20 years.

My question:

Is it safe to work in that area????

Thanks in advance
Thierry
http://www.astrosurf.org/lombry

--
Posted via Mailgate.ORG Server - http://www.Mailgate.ORG

273. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 15:49:52 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <5bovr1l58sbkhobq21rocii504f7hbfavf@4ax.com>
Source record: 65535
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Fri, 06 Jan 2006 19:40:27 -0700, Wes Stewart <n7ws*@*yahoo.com>
wrote:

>http://cgi.ebay.com/HP-909A-50-Ohm-Coaxial-Termination_W0QQitemZ7577035113QQcategoryZ2623
7QQssPageNameZWDVWQQrdZ1QQcmdZViewItem

Thanks, Wes. I'll keep an eye on it.
>>
>>Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
>>connections, again flat up to 1.3Ghz. No switching needed, thankfully.
>
>I must ask, what is the purpose of this?

The (thumping great) service manual that came with this VNA gives
various levels of tests that can be performed oneself prior sending
the thing away for calibration. The power splitter together with a few
other basic items enables the analyzer to 'check itself' for
fundamental operating fitness.
I'm eager to get measurin' stuff, but need to establish some basic,
satisfactory level of accuracy first. Being just a hobbyist, I don't
require any absolute standard, thankfully!!

--

"What is now proved was once only imagin'd" - William Blake

274. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 16:39:21 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ouqvr1p2t1941qk39ukc1gm6b140rd17o1@4ax.com>
Source record: 65534

On Sat, 7 Jan 2006 15:47:01 +0000 (UTC), "Thierry"
<lombryt@hotmail.com> wrote:
>My company has installed a Radar Tower for Port survaillence. The tower
>is about 50 meter height on top of the of a 3 stories building roof and
>my office building just below the tower on the same level, 20 meter away
>from the tower.

When I was a lad in Electronics School
They tied my ass to a students stool.
A radar was operating just 20 feet away;
And with each turn it pointed our way.

We thought it was just to test the running gear.
Certainly we never considered it with fear;
But when the TV in the corner sizzled with each pass,
We counted revolutions to the end of class.

>At the same time, the surrounding is my working area (
>Jetty Terminal for ships loading and unloading activities).

In light of the fear, here's a piece of impudence:

>I can say that I'll be around that area 12 hours a day for another 20 years.
>
>My question:
>
>Is it safe to work in that area????

No, the industrial sound level will undoubtedly lead to hearing issues
later in life (if you survive the radiation).

73's
Richard Clark, KB7QHC

Apologies to Gilbert and Sullivan and "The Monarch of the Sea"

275. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 17:16:13 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <uj9593-2gq.ln1@p400bob.personal.cox.net>
Source record: 65538

Hi Thierry

I dont have the answers on hand. There are however exposure limits set by legislation in various countries. You will often find websites that help you determining what the conditions are at your location. Amateur radio stations for example meed to be concerned about EMR levels when the radiated power gets high.

If you cant find anything on your countries radiocomm authorities site have a look at the US's FCC or Australia's ACMA sites. The exposure limits tend to be a fairly universal thing. I would suggest too that to license such a radar structure a EMR study would have to be done as a matter of course. This is a important part of spectrum and safety planning that is certainly the norm in Australia.

I would suspect too that being used for ships at short range the output power would not be nowhere near what is used at longer distances. If perchance it is used for longer range as well, then the antenna system would be designed in such a way that most of the radiated power is horizontal and as such only a small component would be aimed down at your office/work location. This is the same logic as placing a cellphone antenna up very high so that nearby EMR is not an issue.

My gut feel is that it is safe. You havent of course provided power and antenna pattern figures for the installation.

Cheers Bob W5/VK2YQA

Thierry wrote:

>
> My question:
>
> Is it safe to work in that area????

>

276. Re: Need some pointers on building UHF/microwave 50 ohm termination/power splitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 17:25:18 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <bmtvr1lqm3f98iba88rlnvc7qs7cst2ur6@4ax.com>
Source record: 65536
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Sat, 07 Jan 2006 16:49:52 +0100, Paul Burridge
<pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote:

>On Fri, 06 Jan 2006 19:40:27 -0700, Wes Stewart <n7ws*@*yahoo.com>
>wrote:
>
>
>>>http://cgi.ebay.com/HP-909A-50-Ohm-Coaxial-Termination_W0QQitemZ7577035113QQcategoryZ262
37QQssPageNameZWDVWQQrdZ1QQcmdZViewItem
>
>Thanks, Wes. I'll keep an eye on it.
>>>
>>>Secondly, a 50 ohm power splitter (one feed-in; three outputs) N-type
>>>connections, again flat up to 1.3Ghz. No switching needed, thankfully.
>>
>>I must ask, what is the purpose of this?
>
>The (thumping great) service manual that came with this VNA gives
>various levels of tests that can be performed oneself prior sending
>the thing away for calibration. The power splitter together with a few
>other basic items enables the analyzer to 'check itself' for
>fundamental operating fitness.

Okay, I couldn't figure out what operational use it would have.

277. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 17:35:58 UTC
From: Dave Holford <holford@sympatico.ca>
Message-ID: <43BFFBFE.7CB0FE7F@sympatico.ca>
Source record: 65537

Thierry wrote:

> Hi,
>
> I received this message from a colleague but I cannot answer him. I d
> not know these systems.
> Could you help me ?
>
> My company has installed a Radar Tower for Port survaillence. The tower
> is about 50 meter height on top of the of a 3 stories building roof and
> my office building just below the tower on the same level, 20 meter away
> from the tower. At the same time, the surrounding is my working area (
> Jetty Terminal for ships loading and unloading activities). I can say
> that I'll be around that area 12 hours a day for another 20 years.
>
> My question:
>
> Is it safe to work in that area????
>
> Thanks in advance
> Thierry
> http://www.astrosurf.org/lombry
>
> --
> Posted via Mailgate.ORG Server - http://www.Mailgate.ORG

I have spent most of my working life around various RADARs starting in my late teens at the Royal Radar Research Establishment; which was flooded with RF from numerous operating systems on a large variety of frequencies - throughout much of the establishment a neon bulb would often light just from the RF environment.

The last 25years or so before retirement were in a building with numerous installations, including a long range L band ATC primary and secondary installation which provided some entertainment in idle hours as I computed the radiation pattern - with a surprising degree of accuracy - from the noise emanating from my office radio as the beam swept by.

Across the hall was a lunchroom with a large health and safety warning sign on the door that a microwave oven was in the room. Looking out the window one was staring down the throat of an operating marine RADAR less than 30 feet away!!

To the best of my knowledge no one who worked there has developed any strange illness that even rumour has related to the RADARs. I retired 10 years ago and have no significant illness.

Oh yes, and my kids seem to be relatively normal. (Maybe because I wore aluminum underwear?)

Dave

278. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 18:14:01 UTC
From: You <You@shadow.orgs>
Message-ID: <You-C0D530.09151707012006@netnews.worldnet.att.net>
Source record: 65539

In article
<8545c34b738aa8f3099fdd2334602bc0.99986@mygate.mailgate.org>,
"Thierry" <lombryt@hotmail.com> wrote:

> Hi,
>
> I received this message from a colleague but I cannot answer him. I d
> not know these systems.
> Could you help me ?
>
> My company has installed a Radar Tower for Port survaillence. The tower
> is about 50 meter height on top of the of a 3 stories building roof and
> my office building just below the tower on the same level, 20 meter away
> from the tower. At the same time, the surrounding is my working area (
> Jetty Terminal for ships loading and unloading activities). I can say
> that I'll be around that area 12 hours a day for another 20 years.
>
> My question:
>
> Is it safe to work in that area????
>
> Thanks in advance
> Thierry
> http://www.astrosurf.org/lombry

Oh yea, you gonnies are going to shrink up, and you winkie is going to
fall off......for sure.....

you

279. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 18:35:59 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <8c20s1hvcuo6b1afudfjir18tn045eb96j@4ax.com>
Source record: 65540

On Sat, 07 Jan 2006 11:16:13 -0600, Bob Bob <bob3bob3@cox.net> wrote:

>I would suspect too that being used for ships at short range the output
>power would not be nowhere near what is used at longer distances.

Hi Bob,

Probably only about 100KW peak, perhaps half a million.

73's
Richard Clark, KB7QHC

280. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 19:31:20 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43c01707$0$6666$8fcfb975@news.wanadoo.fr>
Source record: 65541

Hello Jawod,

I have buit a twin leed for my center feeder dipole with PCV tubes:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=57&album=7&pos=2

Tubes are after filled with glue. You can see here the final result (click
on the picture to enlarge it):
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=5&album=7&pos=4

Spacing is 5 cm
Distance between spacers is 60 cm

It has been installed for 3 years. It has resisted to many strong winds.

Good luck

Regards

Jean-Marc
F4DRH
www.barbaxoops.com

"jawod" <jawod@fuse.net> a crit dans le message de news:
71286$43bc9d37$42a1bfc2$1899@FUSE.NET...
>I will assume that balanced (air) feedline is homebrew. What
>recommendations are there for spacing between the twin lines? Number of
>spacers per foot? If homebrew, how to keep spacers from migrating...will
>small wire "stays" modify feedline characteristics?
>
> This is all about feedline to simple dipole or inverted V.
>
> Thanks,
>
> a new (old) ham
>
> jawod aka john

281. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 20:59:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dppa2s$1cc$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65542

MATCHING END-FED 1/2-WAVE ANTENNAS TO THE TRANSMITTER.

Instead of depending on hearsay and old-wives tales, there is a logical way of selecting tuned-circuit L and C values.

To begin, in the case of impedance matching it is always required to maximise power efficiency.

It is the power lost in the tuned circuit which matters.

To minimise power lost in the tuned circuit it is necessary to minimise the current circulating in it. (Circulating current is the antenna current times working Q but there's no need to know what Q actually is.)

For a given radiated power the voltage across the tuned circuit and antenna when at resonance is fixed. So to minimise circulating current the reactances of L and C should be as high as practicably possible. That's obvious!

So for a high reactance of C (which is approximately the reactance of L), C should be mimised.

The limit on the smallness of C is the minimum setting value of the tuning capacitor, plus coil self-capacitance, plus stray capacitance associated with wiring and connections to the end of the antenna, plus an allowance for the antenna not being exactly at resonance, plus a small 'safety' margin to allow the tuning capacitor to be adjusted to either above or below resonance.

For half-wave antennas at frequencies below 11 MHz a tuning capacitor setting of 20 or 25 pF is suitable. This choice automatically sets the value of the inductance (which is usually higher than the inductance value of a roller inductor and can be home-brewed quite easily.)

The maximum setting of the tuning capacitor allows the circuit with the antenna to be tuned to the lower frequency bands. But efficiency will be reduced on lower frequency bands due to smaller reactances of L and C and the greater circulating current. Note that the reactances of L and C are always approximately equal to each other.

Theoretically, if the antenna length is slightly shorter than 1/2-wavelength, then it is impossible to obtain an impedance match with this particular circuit. You can't have a tuning capacitor less than zero pF. It is prudent to select the overall antenna length to be a few feet longer than 1/2-wavelength at the desired operating

frequency.

On the other hand, it is just as well to remember, a non-resonant end-fed antenna wire is no less efficient than an exactly resonant wire provided it can be matched to whatever load resistance is required by the transmitter. (And the load resistance presented to the tansmitter as indicated by a TLI has nothing to do with the so-called, and imaginary, SWR).

As Walter Maxwell has peviously pointed out, SWR = Short Wave Radio.

But, despite its diagramatic simplicity, a parallel tuned circuit is a not-so-simple, quite complicated arrangement when used as an impedance matching transformer between an end-fed antenna and the transmitter. No maths needed - just arithmetic.

Slight change of topic -

I am presently imbibing White, Argentinian, Chardonnay Torrentes. I do hope my use of plain English language does not lead to misunderstandings.

May I add that I much prefer a decent, intoxicated, political opposition-party leader to a sober, war-mongering Tony Blair. At least a few of you USA citizens must be acquainted with the relatively trivial events taking place in the 'mother' country. In sympathy with what's happening in the US.

When will you impeach your so-called president and rid yourselves of your secret Nazi/OGPU CIA police. I'm sure the Constitution does not allow such people to exist.

We would be happy to confine both Blair and Bush, here, in the historic Tower of London, chained to the cold stone walls, for an indefinite period, on bread and water, without access to legal representation, as so many other kidnapped prisoners (disappeared people), for years, are being presently detained without sound reason or charge.

Have you no conscience? Or have you no idea what a map of the World looks like?

To obtain an elementary understanding of a simple tuned circuit as an impedance-matching circuit, download program TUNEHALF from website below. There are other programs available related to the same subject.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....
==========

282. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 21:42:37 UTC
From: "Harold E. Johnson" <w4zcb@mchsi.com>
Message-ID: <hBWvf.712942$xm3.10147@attbi_s21>
Source record: 65543

> To obtain an elementary understanding of a simple tuned circuit as an
> impedance-matching circuit, download program TUNEHALF from website
> below. There are other programs available related to the same
> subject.
>
Intoxicated BS Diatribe snipped

Or, use an "L" network. Same number of components, and it will even match impedances that call for negative component values in a parallel tuned circuit.

W4ZCB

283. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 22:55:04 UTC
From: Charles Schuler <charleschuler@comcast.net>
Message-ID: <LpCdnUPvrpJW213enZ2dnUVZ_tOdnZ2d@comcast.com>
Source record: 65544
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

> No, I mean ELECTRICALLY balanced. And with the feedline at right angles
> to the antenna so that it doesn't pick up anything by induction. It's a
> tricky thing to do, yet back in the old days hams used to feed dipoles or
> extended double zepp antennas with open wire line and not get much RF in
> the shack. I know mine didn't.

Ran a Windom in Texas in 1965 (WA5KBO) with only 150W and burned a hole in my lip (no joke) with the RF on the metal ring around the microphone! The Windom was a good performer, but I could not effectively ground the rig. I was in student housing (College Station) and was not allowed antennas but improvised!

284. Re: Matching network for end-fed half wave, Q calculations etc.?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 23:18:47 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dppi8n$t81$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65545

> Or, use an "L" network. Same number of components, and it will even
match
> impedances that call for negative component values in a parallel
tuned
> circuit.
>
> W4ZCB
=====================================

Actually, with an exact 1/2-wave antenna, an L-network suffers from
the same disability as does the simple L and C tuned circuit.

This is why automatic antenna tuner manufacturers, which use
L-networks, state in their operating handbooks that exactly 1/2-wave
antennas should be avoided.

But it is not an important matter. Very few antennas are EXACTLY
1/2-wavelength in length. And it is a simple matter to shift the
resonant frequency up or down a few KHz.

Reg, G4FGQ.

285. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-07 23:51:47 UTC
From: Dave <noone@nowhere.com>
Message-ID: <ZZGdnQ6deKKAyV3eRVn-ig@crocker.com>
Source record: 65546
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

rf 'ground' is a real misunderstood thing. and things like this point out just how poorly understood it is. there is really no need for a radio to be 'grounded' to prevent rf burns or to have an antenna work properly... the important thing is to remember that at that point where the rf leaves the radio on the center conductor of the coax connector the current there must be exactly balanced by a current going the opposite direction the inside of the shield of the coax connector. looking at the worst possible case, just stick a random wire in the coax connector and run the rig off a battery with a short cable and no other 'ground' wire. current flows out the center conductor of the connector into the exposed wire and somehow has to get back to the inside of the connector shell to balance it out... well, the only place for that current to come from is coupling from the antenna wire back onto the case of the radio and from there it flows back into the connector. now, put your hand on a metal part of the radio, or your lip if you are unlucky, and what happens?? you are much bigger than the case of the radio and you are fairly conductive, so now you provide a bigger collector for the current from the antenna so lots of it flows through you to get back to the radio connector... hence rf burns. how to stop it?? provide a lower impedance path for the rf to get back to the connector than through you. that can be a counterpoise wire, a 'ground' wire that collects current from the soil under the antenna, connect the case of the radio to your car and the car becomes the collector... OR add an equal sized second wire that 'balances' the current from the wire in the center conductor... the critical point is that it mut be very nearly identical to the first one so the current in it is the same... a dipole that is symetric with respect to the feed point will work, but you have to watch out because the case of the radio is connected to the coax connector also, which tends to unbalance the equation since there is no equivalent lump of metal on the center conductor part of the antenna. to make this job of balancing the currents easier we normally add a length of coax (to get the antenna farther away from the radio) then add a balun to help force the currents in the two halves of the dipoles to be equal so there is no need for current to flow from the radio back into the inside of the shield. a choke on the outside of the feedline also can help, but the reason is different... a choke on the coax creates a very high impedance so that current has a hard time flowing from the case of the radio or outside of the coax back to the inside of the coax. enough rambling, just remember, rf ground is a myth, all you need to do is get those currents equal while preventing the path where they flow from being through you or something else that could be damaged by them.

"Charles Schuler" <charleschuler@comcast.net> wrote in message
news:LpCdnUPvrpJW213enZ2dnUVZ_tOdnZ2d@comcast.com...
>

>
>
>> No, I mean ELECTRICALLY balanced. And with the feedline at right angles
>> to the antenna so that it doesn't pick up anything by induction. It's a
>> tricky thing to do, yet back in the old days hams used to feed dipoles or
>> extended double zepp antennas with open wire line and not get much RF in
>> the shack. I know mine didn't.
>
> Ran a Windom in Texas in 1965 (WA5KBO) with only 150W and burned a hole in
> my lip (no joke) with the RF on the metal ring around the microphone! The
> Windom was a good performer, but I could not effectively ground the rig.
> I was in student housing (College Station) and was not allowed antennas
> but improvised!
>

286. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 00:07:20 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <tfl0s1lcb0msbtc2lp74a5m41qaa2neuuk@4ax.com>
Source record: 65548
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Sat, 07 Jan 2006 10:25:18 -0700, Wes Stewart <n7ws*@*yahoo.com>
wrote:

>Okay, I couldn't figure out what operational use it would have.

Actually, I've noticed that on checking up the mini circuits pointers
that the splitters they manufacture are only good for a given
frequency range. And I don't mean DC- Fx; I mean from say 30Mhz -
1000Mhz or similar. I'd have thought this type of stuff would have a
bottom end of *DC* not some relatively high radio frequency. We're
only talking about power splitters after all, not broadband filters.
So why the low frequency cut-off? Are there some capacitantances
utilized in these designs and if so, what are they doing there?
--

"What is now proved was once only imagin'd" - William Blake

287. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 00:52:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nnZvf.46424$BZ5.5255@newssvr13.news.prodigy.com>
Source record: 65547
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Charles Schuler wrote:
> Ran a Windom in Texas in 1965 (WA5KBO) with only 150W and burned a hole in
> my lip (no joke) with the RF on the metal ring around the microphone! The
> Windom was a good performer, but I could not effectively ground the rig. I
> was in student housing (College Station) and was not allowed antennas but
> improvised!

Dang Charles, I did exactly the same thing in 1957. If you had
asked me, I would have told you to watch out for those metal
microphones when using a Windom.
--
73, Cecil http://www.qsl.net/w5dxp

288. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 01:45:26 UTC
From: Howard Eisenhauer <howarde@REMOVECAPShfx.eastlink.ca>
Message-ID: <gtq0s1hm7lo8gvar6ck0itju7snsgibbgm@4ax.com>
Source record: 65549

If the radar antenna is 50m above your friend's level he'll be well
below the main beam.

While radars do typically have very high peak power outputs they only
transmit for a very brief fraction of time then shut off while they
listen for the echoes coming back from the
ships/planes/trains/automobiles/some clod walking his dog/what have
you. This drops the effective power output to a low level. As the
only demonstrated effect of radio waves is thermal (that is to say
they'll heat you up). the end effect isn't much diferent than what
you'd get from somebody shining a flash light at you from some
distance away. If your friend is worried about cancer lots of people
have tried to prove radio waves can do this but it hasn't been
reproducibly shown yet. If there is a link I'd think the research
would have conclusivly proven it by now. Have a look here-

http://www.mcw.edu/gcrc/cop/cell-phone-health-FAQ/toc.html#23B

This is really aimed at cellphone installations but the same general
ideas apply.

H.

On Sat, 7 Jan 2006 15:47:01 +0000 (UTC), "Thierry"
<lombryt@hotmail.com> wrote:

>Hi,
>
>I received this message from a colleague but I cannot answer him. I d
>not know these systems.
>Could you help me ?
>
>My company has installed a Radar Tower for Port survaillence. The tower
>is about 50 meter height on top of the of a 3 stories building roof and
>my office building just below the tower on the same level, 20 meter away
>from the tower. At the same time, the surrounding is my working area (
>Jetty Terminal for ships loading and unloading activities). I can say
>that I'll be around that area 12 hours a day for another 20 years.
>
>My question:
>
>Is it safe to work in that area????
>
>Thanks in advance
>Thierry
>http://www.astrosurf.org/lombry

289. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 01:56:59 UTC
From: maxfoo <maxfoo@punkass.com>
Message-ID: <ehr0s1tjmrl4hcf4i054g2h2fa5t31sblh@4ax.com>
Source record: 65550
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Sun, 08 Jan 2006 01:07:20 +0100, Paul Burridge
<pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote:

>On Sat, 07 Jan 2006 10:25:18 -0700, Wes Stewart <n7ws*@*yahoo.com>
>wrote:
>
>
>>Okay, I couldn't figure out what operational use it would have.
>
>Actually, I've noticed that on checking up the mini circuits pointers
>that the splitters they manufacture are only good for a given
>frequency range. And I don't mean DC- Fx; I mean from say 30Mhz -
>1000Mhz or similar. I'd have thought this type of stuff would have a
>bottom end of *DC* not some relatively high radio frequency. We're
>only talking about power splitters after all, not broadband filters.
>So why the low frequency cut-off? Are there some capacitantances
>utilized in these designs and if so, what are they doing there?

It's probably a lumped element Wilkinson power divider design and they work at a
specific frequency range the optimum Z match is where the 1/4 wavelength is set.

290. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 02:15:16 UTC
From: John_H <johnhandwork@mail.com>
Message-ID: <UA_vf.5431$Lh1.4877@trnddc01>
Source record: 65551
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

Paul Burridge wrote:
> On Sat, 07 Jan 2006 10:25:18 -0700, Wes Stewart <n7ws*@*yahoo.com>
> wrote:
>
>
>
>>Okay, I couldn't figure out what operational use it would have.
>
>
> Actually, I've noticed that on checking up the mini circuits pointers
> that the splitters they manufacture are only good for a given
> frequency range. And I don't mean DC- Fx; I mean from say 30Mhz -
> 1000Mhz or similar. I'd have thought this type of stuff would have a
> bottom end of *DC* not some relatively high radio frequency. We're
> only talking about power splitters after all, not broadband filters.
> So why the low frequency cut-off? Are there some capacitantances
> utilized in these designs and if so, what are they doing there?

If all you need is a resistive power divider, the frequency limits
should be generous. If you want efficient power dividers (with little
loss in the splitter itself) you use wideband transformers to get the
power split.

291. Re: Stupid question on twin feedline (air)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 03:02:41 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <Se%vf.3617$__4.2378@bignews1.bellsouth.net>
Source record: 65552

"jawod" <jawod@fuse.net> wrote in message
news:71286$43bc9d37$42a1bfc2$1899@FUSE.NET...
> I will assume that balanced (air) feedline is homebrew. What
> recommendations are there for spacing between the twin lines? Number of
> spacers per foot? If homebrew, how to keep spacers from
> migrating...will small wire "stays" modify feedline characteristics?
>

I've heard some use well-varnished dowels as well as pvc pipe, and pieces of
scrap vinyl siding cut to size and drilled for spacers.
and for stays, I've heard epoxy, super-glue, and hot-melt glue works.

If the pieces of vinyl (siding scraps) were folded into a "V", then drilled
for the wire on each side, the springiness of the vinyl would probably hold
itself in place without glue.

spacing of spacers would depend on the stiffness of the wire. Use common
sense - just need to keep a consistent spacing. It would take more spacers
for flexible, stranded wire than for stiff solid wire. 10 guage solid wire
is stiffer than 20 guage braided stranded wire.

292. Re: GeoTool antenna mounts for pickup truck stake holes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 03:57:09 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <dpq2ht016ve@news4.newsguy.com>
Source record: 65553

"Joe S." <anon@mous.com> wrote in message
news:dpk46e01m06@news4.newsguy.com...
> Anyone have experience with these mounts?
>
> http://www.geotool.com/antmount.htm
>
> As you see from their website, the mounts are mounted into the stake holes
> in the sides of a pickup bed. Anyone here used these mounts? What was
> your experience? What truck? How difficult/easy was the installation?
> Has the mount lasted?
>
> Thanks.
>
>

Thanks to all who replied. I checked out the GeoTool website, read their instructions, etc. Then, I investigated my truck and it looks like a simple installation -- the interior of the stake hole is readily accessible with the taillight fixture removed. I ordered two of the GeoTool mounts today -- one for a Radiall/Larsen dual-bander VHF/UHF and one for an ASAT-120.

Will post photos of the installation later.

>

293. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 07:48:34 UTC
From: nm5k@wt.net
Message-ID: <1136670512.505925.207910@g14g2000cwa.googlegroups.com>
Source record: 65482

>I have about 40 feet of garden to erect an antenna....Could anyone tell
me if I took 2 20 feet length of twin ladder and shorted the ends
fed one side of the dipole with twin ladder and connected a 52 ohm
resistor across the other side so the tx would see a match would be
better than feeding a 40 foot endfed through an atu...
My thinking is that most of the small antenna on the market are just
dummy loads with a small amount of wire attached and appear to work so
>would my 40 feet work better.. ?? .....

If you are trying to avoid a dummy load, a resister is the last
thing you want. It should be illegal to add resisters to otherwise
perfectly good antennas.
It's hard to comment about the antenna, as I don't know what
bands, how much height, etc... Not enuff info...
MK

294. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 12:08:02 UTC
From: Thierry <lombryt@hotmail.com>
Message-ID: <1136722082.927929.234700@o13g2000cwo.googlegroups.com>
Source record: 65483

OK Thanks Howard and the others.
I have well an article on my website about EMR and health but I hadn't
data about radar.

Still thanks
Thierry

295. Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 12:56:31 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dpr260aht1@news-01.bur.connect.com.au>
Source record: 65554
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Hi, i have aquired an old Dick Smith Radio Direction Finder unit but there is no ASU (Antenna Switching Unit) or antennas with it. I would like to know if someone might have information on how to build the antennas and ASU and any more information on the kit itself.

Thanks

Gary

296. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 13:28:25 UTC
From: Simon Templar <usenet@vk3xem.net>
Message-ID: <43c11379$1_2@news.melbourne.pipenetworks.com>
Source record: 65555
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Gary Smith wrote:
> Hi, i have aquired an old Dick Smith Radio Direction Finder unit but there
> is no ASU (Antenna Switching Unit) or antennas with it. I would like to know
> if someone might have information on how to build the antennas and ASU and
> any more information on the kit itself.
>
> Thanks
>
> Gary

Could you have found any more newsgroups to cross-post to?

--
73 de Simon, VK3XEM.

297. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 14:14:43 UTC
From: Dave <noone@nowhere.com>
Message-ID: <Aq-dnVewhKvCg1zeRVn-jw@crocker.com>
Source record: 65556
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

they never came with antennas that i know of, you had to build them
yourself. the plans for the asu including circuit board and parts list are
in the manual, they are simple things that you should be able to find at any
radio parts store... assuming you can find one of those today.

"Gary Smith" <mygrps@aapt.net.au> wrote in message
news:dpr260aht1@news-01.bur.connect.com.au...
> Hi, i have aquired an old Dick Smith Radio Direction Finder unit but there
> is no ASU (Antenna Switching Unit) or antennas with it. I would like to
> know if someone might have information on how to build the antennas and
> ASU and any more information on the kit itself.
>
> Thanks
>
> Gary
>

298. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 15:20:45 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <8s82s1p59061ni8r4gitc65rna6m6543e7@4ax.com>
Source record: 65557
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

On Sun, 08 Jan 2006 01:07:20 +0100, Paul Burridge
<pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote:

>On Sat, 07 Jan 2006 10:25:18 -0700, Wes Stewart <n7ws*@*yahoo.com>
>wrote:
>
>
>>Okay, I couldn't figure out what operational use it would have.
>
>Actually, I've noticed that on checking up the mini circuits pointers
>that the splitters they manufacture are only good for a given
>frequency range. And I don't mean DC- Fx; I mean from say 30Mhz -
>1000Mhz or similar. I'd have thought this type of stuff would have a
>bottom end of *DC* not some relatively high radio frequency. We're
>only talking about power splitters after all, not broadband filters.
>So why the low frequency cut-off? Are there some capacitantances
>utilized in these designs and if so, what are they doing there?

Without knowing which devices you're referring to, I would still guess
that they are based on broadband transformers. "Broadband" does not
mean DC to daylight. And yes, there might be some compensation caps
involved too.

If you want better bandwidth, including DC, and loss is not a concern,
then fully resistive dividers are what you want. An example of a
two-port is here:

http://www.k6mhe.com/n7ws/HP-11549.pdf

299. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 15:33:57 UTC
From: Fred Bloggs <nospam@nospam.com>
Message-ID: <43C130E2.1050904@nospam.com>
Source record: 65558
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

> Actually, I've noticed that on checking up the mini circuits pointers
> that the splitters they manufacture are only good for a given
> frequency range. And I don't mean DC- Fx; I mean from say 30Mhz -
> 1000Mhz or similar. I'd have thought this type of stuff would have a
> bottom end of *DC* not some relatively high radio frequency. We're
> only talking about power splitters after all, not broadband filters.
> So why the low frequency cut-off? Are there some capacitantances
> utilized in these designs and if so, what are they doing there?

These are ferrite transformer hybrid splitters with fractional dB
insertion loss beyond the 3dB split and typically 30dB isolation between
output ports. If you want a DC splitter then they have those too- but
you're not swift enough to see them. They are simply this. What do you
think the loss and isolation is now?:
View in a
fixed-width font
such as Courier.

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300. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 17:34:21 UTC
From: "David L. Wilson" <dwilson314@adelphia.net>
Message-ID: <aYadnRs0HK-C0FzeRVn-uQ@adelphia.com>
Source record: 65559
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

"Dave" <noone@nowhere.com> wrote in message
news:Aq-dnVewhKvCg1zeRVn-jw@crocker.com...
> they never came with antennas that i know of, you had to build them
> yourself. the plans for the asu including circuit board and parts list
> are in the manual, they are simple things that you should be able to find
> at any radio parts store... assuming you can find one of those today.

They did come with the needed switching diodes which were a weak point in
the design and there was later a suggested replacement.

301. Correction of my error.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 18:01:40 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dprk24$67v$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65560

> > Or, use an "L" network. Same number of components, and it will
even
> match
> > impedances that call for negative component values in a parallel
> tuned
> > circuit.
> >
> > W4ZCB
> ====================================
>
> Actually, with an exact 1/2-wave antenna, an L-network suffers from
> the same disability as does the simple L and C tuned circuit.
>
> This is why automatic antenna tuner manufacturers, which use
> L-networks, state in their operating handbooks that exactly 1/2-wave
> antennas should be avoided.
>
> But it is not an important matter. Very few antennas are EXACTLY
> 1/2-wavelength in length. And it is a simple matter to shift the
> resonant frequency up or down a few KHz.
> ----
> Reg, G4FGQ.
==

It was incorrect of me to say that an L-network suffers from the same disability as the parallel L and C tuned circuit. But it does suffer from disabilities of a different sort.

As you say, Harold, the L-network can be tuned to either side of antenna resonance without calling for impossible negative component settings.

The input impedance of a 1/2-wave antenna at resonance is a pure resistance of several thousand ohms. But only very slightly on either side of resonance the series resistive component of Zin falls to a much smaller value - and there arises a series reactive component which can also rise to several thousand ohms. Things change very fast versus frequency.

The automatic tuner manufacturers recommend avoidance of end-fed 1/2-wave antennas because very high values of switched inductance are needed on the lower frequency HF bands to provide an impedance match to 50 ohms. You will be aware, in automatic tuners, that both L and C are switched.

It is uneconomic to provide large microhenry values of switched inductance for use only on antennas which are rarely found, i.e. on end-fed wires which happen to be exactly 1/2-wave resonant.

It is also uneconomic to provide a switched range of small value capac itors, say from 0 to 20 pF.

Whereas, with an L & C parallel tuned circuit the coil is home-brewed, it has high intrinsic Q, it is fixed in value, and tuning is done by varying only the capacitor. Impedance matching to the transmitter is done by tapping the transmission line up and down the coil turns.

It also transpires that the power efficiency of a parallel tuned L & C matching circuit is higher than an L-network which does the same job. That is because the circuit designer has control over choice of L and C values. Whereas, with an L-match, the L and C values are pre-determined by the values of the load and generator impedances over which the circuit designer has no control.

There is an additional complication of L-network design. At certain values of load and generator impedances, the location and values of L's and C's in the circuit can suddenly change versus frequency. And there is always a choice between 2 circuits which perform same job.

Anyone interested can download program L_TUNER from website below.

The antenna input impdances obtained from program TUNEHALF can be inserted in program L_TUNER and the L and C component values compared between one type of tuner and the other.

Remember that with the L-tuner both L and C are variable. With the parallel L and C tuned circuit, in general, only C is variable and impedance matching is accomplished by tapping up the coil. (or by varying the turns on a link-coupling which, by the way, confers other advantages.)

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

302. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 18:36:20 UTC
From: Glenn McAllister <glennmca@orcon.net.nz>
Message-ID: <43C15BA4.3F39@orcon.net.nz>
Source record: 65561
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Gary Smith wrote:
>
> Hi, i have aquired an old Dick Smith Radio Direction Finder unit but there
> is no ASU (Antenna Switching Unit) or antennas with it. I would like to know
> if someone might have information on how to build the antennas and ASU and
> any more information on the kit itself.
>
> Thanks
>
> Gary

I've got one - defective - I think I popped the switching diodes by accidentally transmitting thru it. I know I've got the dox 'somewhere' - just gotta dig 'em out.

From memory, the four pin cable from the main unit sends a rotating DC bias to each of the switching diodes in the box. There's a diode at the antenna base too, by design. I haven't opened the box yet, but the diode at the antenna base is ITT BA 282 Cathode (bar) to coax shield.

If/when I find the dox, I'll get back to you. Let me know how you progress.

Glenn ZL2TLD

303. Re: Correction of my error.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 18:36:48 UTC
From: "Harold E. Johnson" <w4zcb@mchsi.com>
Message-ID: <4Zcwf.692079$_o.561067@attbi_s71>
Source record: 65562

> Anyone interested can download program L_TUNER from website below.
>
> The antenna input impdances obtained from program TUNEHALF can be
> inserted in program L_TUNER and the L and C component values compared
> between one type of tuner and the other.
>
> Remember that with the L-tuner both L and C are variable. With the
> parallel L and C tuned circuit, in general, only C is variable and
> impedance matching is accomplished by tapping up the coil. (or by
> varying the turns on a link-coupling which, by the way, confers other
> advantages.)
> ----
> ....
> Regards from Reg, G4FGQ

MUCH better Reg.

At one time, my 160 meter half wave was fed with a parallel tuned circuit using a huge roller inductor (5 inch diameter, foot long surplus thing) I used the same motor driven vacuum variable to obtain resonance and the roller "tap" was only to obtain the 50 Ohm match. Was a fine 160 meter antenna, but my 40 meter quad was an eyesore and difficult to maintain, and I had nothing up for 80. Swapping out the inductor for a piece of Airdux and tapping that for 3 values of inductance and selecting those with an old Ledex motor driven rotary switch gave me all 3 bands with an "L" network. Difficult to accomplish with a parallel tuned circuit without appreciable additional complexity, never noticed any difference in performance on 160 meters. We now have two copycat antennas, up for several years. W4GCK and W1TRF, both are as well pleased as I have been. GCK and I have a directional antenna for the higher bands, TRF uses his on all bands.

Regards
W4ZCB

304. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 20:47:53 UTC
From: Scott in Baltimore <sDcOoNtTtS_PuAnMiMtE_69@yahoo.com>
Message-ID: <5JOdnSO7esrq51zeRVn-vA@comcast.com>
Source record: 65563
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Glenn McAllister wrote:
> Gary Smith wrote:
>
>>Hi, i have aquired an old Dick Smith Radio Direction Finder unit but there
>>is no ASU (Antenna Switching Unit) or antennas with it. I would like to know
>>if someone might have information on how to build the antennas and ASU and
>>any more information on the kit itself.
>>
>>Thanks
>>
>>Gary
>
>
> I've got one - defective - I think I popped the switching diodes by
> accidentally transmitting thru it. I know I've got the dox 'somewhere'
> - just gotta dig 'em out.
>
> From memory, the four pin cable from the main unit sends a rotating DC
> bias to each of the switching diodes in the box. There's a diode at the
> antenna base too, by design. I haven't opened the box yet, but the
> diode at the antenna base is ITT BA 282 Cathode (bar) to coax
> shield.
>
> If/when I find the dox, I'll get back to you. Let me know how you
> progress.
>
> Glenn ZL2TLD

Maybe they are PIN diodes that turn on (conduct) when forward biased?

http://www.discovercircuits.com/D/direction.htm
Find more:
http://www.google.com/search?hl=en&lr=&q=radio+direction+finder+schematic&tab=ww

305. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 21:41:28 UTC
From: Glenn McAllister <"(callsign)"@orcon.net.nz>
Message-ID: <43C18707.12BE@orcon.net.nz>
Source record: 65564
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Scott in Baltimore wrote:
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> > Gary Smith wrote:
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> >>is no ASU (Antenna Switching Unit) or antennas with it. I would like to know
> >>if someone might have information on how to build the antennas and ASU and
> >>any more information on the kit itself.
> >>
> >>Thanks
> >>
> >>Gary
> >
> >
> > I've got one - defective - I think I popped the switching diodes by
> > accidentally transmitting thru it. I know I've got the dox 'somewhere'
> > - just gotta dig 'em out.
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> > From memory, the four pin cable from the main unit sends a rotating DC
> > bias to each of the switching diodes in the box. There's a diode at the
> > antenna base too, by design. I haven't opened the box yet, but the
> > diode at the antenna base is ITT BA 282 Cathode (bar) to coax
> > shield.
> >
> > If/when I find the dox, I'll get back to you. Let me know how you
> > progress.
> >
> > Glenn ZL2TLD
>
> Maybe they are PIN diodes that turn on (conduct) when forward biased?
>
> http://www.discovercircuits.com/D/direction.htm
> Find more:
> http://www.google.com/search?hl=en&lr=&q=radio+direction+finder+schematic&tab=ww

They sure seem to be :
http://members.aol.com/homingin/DSEfix.html
The ones in the box switch one of the antennas at a time to the RDF, and
the ones at the base of the antennas groung the out-of-use antennas.

Glenn ZL2TLD

306. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 22:18:03 UTC
From: Charles Schuler <charleschuler@comcast.net>
Message-ID: <A_SdnaQv_rICElzeRVn-gQ@comcast.com>
Source record: 65565
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

> Dang Charles, I did exactly the same thing in 1957. If you had
> asked me, I would have told you to watch out for those metal
> microphones when using a Windom.

I only made that mistake once! That burn was very slow to heal, by the way.
I clearly understood several principles after that. Close-talking the mic
and over-modulation was the least of them.

307. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 23:03:41 UTC
From: Al Klein <rukbat@invalid.net>
Message-ID: <a863s15jsisveq0ghaag6ec4fcj7csg3ei@4ax.com>
Source record: 65566
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

On Sun, 8 Jan 2006 23:56:31 +1100, "Gary Smith" <mygrps@aapt.net.au>
wrote:

There are probably at least a dozen other RDF designs nased on the
same idea floating around on the web. A look at any of them, and a
schematic of what you have (draw one if necessary), will tell you how
to make what you need.

The antennas are usually 1/2 wave dipoles at whatever frequency the
unit will be used. Copperweld or wire hangers make decent antennas,
although I prefer stainless control wire of the type used on model
planes.

308. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 23:32:54 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dps7h9be1@news-01.bur.connect.com.au>
Source record: 65567
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Well, i thought if you need information why not get as much as you can in one go?
Seems logical to me. And it's not like i'm posting some dribble, bs, flame.
I am getting some good replies so far.

Gary

309. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 23:34:40 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dps7ihcj1@news-01.bur.connect.com.au>
Source record: 65568
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Dave, if i had a manual with info on how to build one i'd be down the electronics shop getting the bits and building one as we speak :>

Gary

"Dave" <noone@nowhere.com> wrote in message news:Aq-dnVewhKvCg1zeRVn-jw@crocker.com...
> they never came with antennas that i know of, you had to build them
> yourself. the plans for the asu including circuit board and parts list
> are in the manual, they are simple things that you should be able to find
> at any radio parts store... assuming you can find one of those today.

310. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 23:44:30 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dps850$15l$1@news-01.bur.connect.com.au>
Source record: 65569
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Thanks Al, but i'm not too good at working out stuff like that, if it's all laid out in kit form i'm ok. and i thought that seeing these things are reasonably critical (antenna units) that if i tried another design i may be waisting my time and parts on something that isn't suited. Thanks for your input.

Gary

"Al Klein" <rukbat@invalid.net> wrote in message news:a863s15jsisveq0ghaag6ec4fcj7csg3ei@4ax.com...
> On Sun, 8 Jan 2006 23:56:31 +1100, "Gary Smith" <mygrps@aapt.net.au>
> wrote:
>
> There are probably at least a dozen other RDF designs nased on the
> same idea floating around on the web. A look at any of them, and a
> schematic of what you have (draw one if necessary), will tell you how
> to make what you need.
>
> The antennas are usually 1/2 wave dipoles at whatever frequency the
> unit will be used. Copperweld or wire hangers make decent antennas,
> although I prefer stainless control wire of the type used on model
> planes.

311. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-08 23:45:22 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dps86k$171$1@news-01.bur.connect.com.au>
Source record: 65570
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Glenn that would be great if you could possibly scan the docs and email them, really appreciate that, Thanks.

Gary

> I've got one - defective - I think I popped the switching diodes by
> accidentally transmitting thru it. I know I've got the dox 'somewhere'
> - just gotta dig 'em out.
>
> From memory, the four pin cable from the main unit sends a rotating DC
> bias to each of the switching diodes in the box. There's a diode at the
> antenna base too, by design. I haven't opened the box yet, but the
> diode at the antenna base is ITT BA 282 Cathode (bar) to coax
> shield.
>
> If/when I find the dox, I'll get back to you. Let me know how you
> progress.
>
> Glenn ZL2TLD

312. J-Pole Installation Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 00:34:45 UTC
From: Paul Proefrock <proefrock@heartlandREMOVEgroup.com>
Message-ID: <Fciwf.52945$7h7.40143@newssvr21.news.prodigy.com>
Source record: 65571

Can anyone help a newbie installing a J-Pole antenna.

Antenna: Copper Pipe Dual Band 2M/70CM. Bottom of long leg is tee. lower leg of tee goes 14" w/ 1/2" copper then transitions to 1" x 36". This is clamped to two tv mast mounts, anchored to a wooden chimney chase.

When I built the antenna, it displayed a relatively flat SWR across both bands, using an MFJ-269. Antenna was free standing in yard, away from anything to affect it.

After mounting, the SWR seems to vary from as measured (1:1.2) to off the map. Thought it was maybe bad coax (LMR-400) but as I checked it, the SWR came back into line. Someone told me to ground the lower end of the j-pole, as if it were clamped to a tower. I did this and the SWR goes off the map.

Should a J-pole be grounded? if not, how do you protect it or the structure from a lightning strike?

Thanks

Paul P

313. Re: J-Pole Installation Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 02:56:25 UTC
From: Dan Richardson <>
Message-ID: <v0k3s1li6l192ec4hed1brvvuj31hc2t8g@4ax.com>
Source record: 65572

On Mon, 09 Jan 2006 00:34:45 GMT, "Paul Proefrock"
<proefrock@heartlandREMOVEgroup.com> wrote:

>Should a J-pole be grounded? if not, how do you protect it or the structure
>from a lightning strike?

A j-pole should be insulated from a conductive mast and a choke type
balun use on the transmission lines. Not so much for matching but to
keep the maximum signal towards the horizon and not shoot up at high
angles. Unless you want to talk to airplanes.

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

314. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 03:25:00 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9745C58343BB7doldridgsprintca@64.59.135.159>
Source record: 65573
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Charles Schuler" <charleschuler@comcast.net> wrote in
news:LpCdnUPvrpJW213enZ2dnUVZ_tOdnZ2d@comcast.com:

>
>
>
>> No, I mean ELECTRICALLY balanced. And with the feedline at right
>> angles to the antenna so that it doesn't pick up anything by
>> induction. It's a tricky thing to do, yet back in the old days hams
>> used to feed dipoles or extended double zepp antennas with open wire
>> line and not get much RF in the shack. I know mine didn't.
>
> Ran a Windom in Texas in 1965 (WA5KBO) with only 150W and burned a
> hole in my lip (no joke) with the RF on the metal ring around the
> microphone! The Windom was a good performer, but I could not
> effectively ground the rig. I was in student housing (College
> Station) and was not allowed antennas but improvised!

A true windom with a single wire feed, or one of the latter-day kind with
twinlead?

--
Dave Oldridge+
ICQ 1800667

315. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 03:26:39 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9745C5CABE8BFdoldridgsprintca@64.59.135.159>
Source record: 65574
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Charles Schuler" <charleschuler@comcast.net> wrote in
news:A_SdnaQv_rICElzeRVn-gQ@comcast.com:

>
>
>> Dang Charles, I did exactly the same thing in 1957. If you had
>> asked me, I would have told you to watch out for those metal
>> microphones when using a Windom.
>
> I only made that mistake once! That burn was very slow to heal, by
> the way. I clearly understood several principles after that.
> Close-talking the mic and over-modulation was the least of them.

This is where those artificial ground things come in handy. But the end of
the counterpoise needs to be where it can do no harm, as that's where the
artificial ground sticks the voltage.

--
Dave Oldridge+
ICQ 1800667

316. Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 03:45:40 UTC
From: jawod <jawod@fuse.net>
Message-ID: <184c4$43c1dc66$42a1bfc2$11376@FUSE.NET>
Source record: 65575

The G5RV antenna can be found by googling. Anyone using this arrangement. It uses a coax feed to balanced feed (which variously acts as radiating elements, depending on the band). The author says a balun is not needed but then describes an RF choke that sounds a lot like a balun. I am also concerned about TVI with this system.

John

317. Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 04:06:22 UTC
From: DOUGLAS SNOWDEN <snowden@peoplepc.com>
Message-ID: <2jlwf.4907$%W1.831@newsread2.news.atl.earthlink.net>
Source record: 65476

I have a 60ft Universal Tower (aluminum) that is laying
on the ground ready to be tilted up. Before I put it up
I would like to build a hazer type system to lift the
rotor/antenna up. One VE gave me the idea of using barn door sliders as
guides. Trouble is, I can't even find barn door sliders. Seems like it
would be a good way to do it.
I could build the rotor/antenna mont out of aluminum to make it fairly
light. Ideas?

Doug N4IJ
Harrah, OK

318. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 04:57:05 UTC
From: Clark <CP@comcast.net>
Message-ID: <Hs-dnUnzAKbbcFzenZ2dnUVZ_t2dnZ2d@comcast.com>
Source record: 65478
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

There were several modes to the unit , as it was the filter in it was very bad.

"Gary Smith" <mygrps@aapt.net.au> wrote in message
news:dps850$15l$1@news-01.bur.connect.com.au...
> Thanks Al, but i'm not too good at working out stuff like that, if it's
> all laid out in kit form i'm ok. and i thought that seeing these things
> are reasonably critical (antenna units) that if i tried another design i
> may be waisting my time and parts on something that isn't suited. Thanks
> for your input.
>
> Gary
>
> "Al Klein" <rukbat@invalid.net> wrote in message
> news:a863s15jsisveq0ghaag6ec4fcj7csg3ei@4ax.com...
>> On Sun, 8 Jan 2006 23:56:31 +1100, "Gary Smith" <mygrps@aapt.net.au>
>> wrote:
>>
>> There are probably at least a dozen other RDF designs nased on the
>> same idea floating around on the web. A look at any of them, and a
>> schematic of what you have (draw one if necessary), will tell you how
>> to make what you need.
>>
>> The antennas are usually 1/2 wave dipoles at whatever frequency the
>> unit will be used. Copperweld or wire hangers make decent antennas,
>> although I prefer stainless control wire of the type used on model
>> planes.
>
>

319. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 05:14:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Oimwf.47089$dO2.23152@newssvr29.news.prodigy.net>
Source record: 65479

jawod wrote:
> The G5RV antenna can be found by googling. Anyone using this
> arrangement. It uses a coax feed to balanced feed (which variously acts
> as radiating elements, depending on the band). The author says a balun
> is not needed but then describes an RF choke that sounds a lot like a
> balun. I am also concerned about TVI with this system.

http://www.cebik.com/wire/g5rv.html

http://www.vk1od.net/G5RV/
--
73, Cecil http://www.qsl.net/w5dxp

320. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 05:16:14 UTC
From: Mark Keith <nm5k@wt.net>
Message-ID: <43C1F19E.533D@wt.net>
Source record: 65480

jawod wrote:
>
> The G5RV antenna can be found by googling. Anyone using this
> arrangement. It uses a coax feed to balanced feed (which variously acts
> as radiating elements, depending on the band). The author says a balun
> is not needed but then describes an RF choke that sounds a lot like a
> balun. I am also concerned about TVI with this system.
>
> John

I'm not crazy about them at all. I'm not a fan
of switching feedline types midroute to the antenna.
This applies to other antennas as well. The G5RV
was designed mainly as a 20 meter antenna. I'm
not sure who decided it was the magical platform
for a multiband antenna, but someone did...
Someone should get a rope I think... :/
You would be much better ditching the coax and
choke, and running straight ladder line, if feeding
all bands with a tuner. I think coax fed antennas
should see a proper match at the feedpoint of
the antenna. If I'm going to use coax, I'm going to
run coax the whole way.
Some run the "carolina" windoms the same way pretty
much.. :(I've directly tested simple coax fed
dipoles against both of these antennas. It was
fairly ugly. The simple dipole thrashed both of them
handily. There is a good bit of loss in all that
feedline clutter. Some bands worse than others.
If you are going to run a tuner and ladder line for
all band use, a simple dipole on the lowest band
to be used is a fairly decent compromise. No need
to add excess feedline clutter. And loss. :(
If you use ladder line all the way, and tune carefully
using the least inductance, you will have a
fairly efficient system on most all the bands.
Most tuners include a 4:1, but some prefer a 1:1
balun instead.
MK

--
http://web.wt.net/~nm5k

321. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 06:50:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpt133$25m$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65481

To summarise - dump it !

322. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 07:19:51 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <e7060$43c1e4af$471c632f$15153@ALLTEL.NET>
Source record: 65477

The choke balun is used because the G5RV is fed with balanced line. They work well, last a long time and require a tuner. I have never had any TVI with one, nor did I ever expect any.

"jawod" <jawod@fuse.net> wrote in message news:184c4$43c1dc66$42a1bfc2$11376@FUSE.NET...
> The G5RV antenna can be found by googling. Anyone using this
> arrangement. It uses a coax feed to balanced feed (which variously acts
> as radiating elements, depending on the band). The author says a balun
> is not needed but then describes an RF choke that sounds a lot like a
> balun. I am also concerned about TVI with this system.
>
> John

323. APRSPoint new version available !

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 09:24:17 UTC
From: "hxc98@yahoo.com" <hxc98@yahoo.com>
Message-ID: <1136798657.862850.13030@g47g2000cwa.googlegroups.com>
Source record: 65484

APRSPoint 2.2 is released. New features include,

1. Added TNC data view and TNC data log,
2. Enabled auto connect for AGW packet engine,
3. Fixed a bug handling weather station data,
4. Ability to load a default map view at startup,
5. Restore TNC settings when program exits.

and many more. The holiday sale is also extended for 2 more days.
Visist http://www.aprspoint.com for details. Thanks.

324. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 10:56:42 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <Kjrwf.2251$801.676@newssvr30.news.prodigy.com>
Source record: 65485

DOUG,
Depending on how you build the 'hazer', you really don't need
rails. The thing will slide up the tubes of the tower just fine,
won't even bump on the bolts (much). Also sort of depends on just
how 'much' antenna is used and how often it goes up/down, since
there is some wear on the tower. 'Normal' use shouldn't be any
problem though.
A friend built one for me. Not aluminum, and aside from building
muscles I didn't particularly want, worked fine.
'Doc

325. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 13:56:46 UTC
From: Ricke <rceisner@yahoo.com>
Message-ID: <1136815006.906927.74130@z14g2000cwz.googlegroups.com>
Source record: 65486

If SETUP right , There the best HF I've ever used.

326. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 14:23:43 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <Pluwf.441038$zb5.426980@bgtnsc04-news.ops.worldnet.att.net>
Source record: 65487

DOUGLAS SNOWDEN wrote:
> I have a 60ft Universal Tower (aluminum) that is laying
> on the ground ready to be tilted up. Before I put it up
> I would like to build a hazer type system to lift the
> rotor/antenna up. One VE gave me the idea of using barn door sliders as
> guides. Trouble is, I can't even find barn door sliders. Seems like it
> would be a good way to do it.
> I could build the rotor/antenna mont out of aluminum to make it fairly
> light. Ideas?
>
>
> Doug N4IJ
> Harrah, OK
>
>

Almost any full service lumber yard in Oklahoma should carry barn door
hardware. Also, Home Depot and Tractor Supply carry that sort of item.

73,
Gene
W4SZ

327. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 15:50:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0Dvwf.49167$BZ5.38064@newssvr13.news.prodigy.com>
Source record: 65488

Ricke wrote:
> If SETUP right , There the best HF I've ever used.

Maybe the only one? :-) The G5RV, with tuner, is a pretty
good 80m, 40m, 20m, and 12m antenna. If the series section
is varied from 20 feet to 36 feet, it becomes a very good
all-HF-band antenna. With the addition of a parallel 1000pf
capacitor with the series section at 22 feet, on 75m my "G5RV"
has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.
--
73, Cecil http://www.qsl.net/w5dxp

328. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 15:51:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <cEvwf.49174$BZ5.24263@newssvr13.news.prodigy.com>
Source record: 65489

nm5k@wt.net wrote:
> It should be illegal to add resisters to otherwise
> perfectly good antennas.

Except Rhombics, of course. :-)
--
73, Cecil http://www.qsl.net/w5dxp

329. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 19:05:24 UTC
From: Eskay <siebklaasNO@SPAMhotmail.com>
Message-ID: <ypqhtgeamb6l.lk56k4uxkfld$.dlg@40tude.net>
Source record: 65490

On Mon, 09 Jan 2006 14:23:43 GMT, Gene Fuller wrote:

> DOUGLAS SNOWDEN wrote:
>> I have a 60ft Universal Tower (aluminum) that is laying
>> on the ground ready to be tilted up. Before I put it up
>> I would like to build a hazer type system to lift the
>> rotor/antenna up. One VE gave me the idea of using barn door sliders as
>> guides. Trouble is, I can't even find barn door sliders. Seems like it
>> would be a good way to do it.
>> I could build the rotor/antenna mont out of aluminum to make it fairly
>> light. Ideas?
>>
>>
>> Doug N4IJ
>> Harrah, OK
>>
>>
>
> Almost any full service lumber yard in Oklahoma should carry barn door
> hardware. Also, Home Depot and Tractor Supply carry that sort of item.
>
> 73,
> Gene
> W4SZ

Maybe he doesn't quite know what to look for.
Many years ago an article was published here how to make this Hazer type device..It looked heavy on the side of his tower.
If anyone wants the article, I could try to find it and make a scan.
Eskay.

330. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 19:12:09 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <OeqdnVLAeNYZKF_eRVn-sA@comcast.com>
Source record: 65491

```
Cecil Moore wrote:
> nm5k@wt.net wrote:
>
>> It should be illegal to add resisters to otherwise
>> perfectly good antennas.
>
>
> Except Rhombics, of course. :-)

And Beverages ...
```

331. Re: J-Pole Installation Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 20:45:36 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43c2cb70$0$6663$8fcfb975@news.wanadoo.fr>
Source record: 65492

Hello Paul,

You do not need to ground the J-Pole antenna because it is a half-wave
dipole feeded with a quarter-wave length.
That's why the total antenna lentgh = (1/2 + 1/4) x lambda

I have built several 2m J-Pole antennae (with copper pipes) without any
problems. The last one was clipped to the TV mast (as yours). The only
problem I have experienced was with a dual band (2m/70cm) J-Pole (your
case). It was solved by ajusting some of the dimensions.

If it is your first J-Pole, I suggest you to built first a mono-band (2m).
You will succed because this is the most easier antenna I have ever built!!!
Then you will be able to handle a dual band J-Pole.

Do not vanish!!!.... This is a very nice antenna. It's main benefit is the
very low angle of its radiation over the horizon (between 3 and 4 degrees).
I did a contact with Marocco from my location (IN88HR) with 10 watts!!! OK
!!! It was a sporadic .... ;-)))

Good luck. Contact me if you want more details.

Best regards

Jean-Marc
F4DRH
www.barbaxoops.com

">
> Antenna: Copper Pipe Dual Band 2M/70CM. Bottom of long leg is tee. lower
> leg of tee goes 14" w/ 1/2" copper then transitions to 1" x 36". This is
> clamped to two tv mast mounts, anchored to a wooden chimney chase.
>
> When I built the antenna, it displayed a relatively flat SWR across both
> bands, using an MFJ-269. Antenna was free standing in yard, away from
> anything to affect it.
>
> After mounting, the SWR seems to vary from as measured (1:1.2) to off the
> map. Thought it was maybe bad coax (LMR-400) but as I checked it, the SWR
> came back into line. Someone told me to ground the lower end of the
> j-pole, as if it were clamped to a tower. I did this and the SWR goes off
> the map.
>
> Should a J-pole be grounded? if not, how do you protect it or the
> structure from a lightning strike?
>
> Thanks

>
> Paul P
>

332. Re: RF power splitter design (was something else)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 20:48:33 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1136839713.852034.112470@g14g2000cwa.googlegroups.com>
Source record: 65493
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,sci.electronics.design

(Seems like this should be r.r.a.homebrew instead of the antennas group!)

Beware of the difference between a "power divider" and a "power splitter." (The terminology different folk use can be confusing, because there's not good consistency in the useage...) I gather, without reading every word of this thread, that you want to make network measurements, and the splitter is to provide levelling: either a reference channel or actual amplitude control of the exciting signal.

So for a two-way, you want simply an input connector and two output connectors, with a 50 ohm resistor from the input to each output. The trick is that you want as near perfect symmetry between the two channels as you can get. Ideally, each 50 ohm R will be in a coaxial environment where the output end is 50 ohms and the input end is 100 ohms, but you don't have to control that very accurately to get it to work well to 1.3GHz. With that arrangement, the source "sees" 50 ohms if each output is loaded with 50 ohms, and if you use one output channel to control the level, the level stays constant at the input connector (since that's what's being monitored) and that is an EFFECTIVE zero impedance point, much as the inverting input to an op amp is a virtual ground. The the second output port then shows an effective 50 ohms source impedance. You can show that monitoring the reference channel instead of actually using it to control the level is functionally the same for circuits which are not significantly level dependent.

For a three-way, you want 50 ohms to each output port as with the two-way, but now since the three outputs in parallel (each 50 ohms load plus 50 ohms series resistor) result in 33.3 ohms at the junction where they come together, you need 16.7 ohms in series from there to the input port, to provide a 50 ohm load for the source (assuming 50 ohm loads on each output). Note that 16.7=50/3. So you can make that splitter with 6 50 ohm resistors.

Being just resistive devices, the only thing that limits the frequency response is parasitic inductances and capacitances--not being able to make the environment "perfect". But that's only a problem on the high end, not the low end. DC is not a problem for these devices. However, they are much more lossy than a power divider, which ideally has no loss in the divider itself, at least with proper loads.

We had a need for some DC-6GHz splitters. The commercial ones we had were rated to 3GHz, and indeed they weren't all that wonderful much beyond that. A search for commercial ones that were rated to 6GHz came

up empty. So I designed a 6GHz one, using 50 ohm 0805 SMT resistors, with some help from a mechanical engineer. The three output ports are in one plane, radial spokes from the central node where all four resistances come together. The input port is perpendicular to that at the center. The resistors are all soldered together at one point, zero lead length except for their terminations and the tiny ball of solder. To get good performance to 6GHz, there's a screw that adjusts the capacitance from ground to the central node. It's all housed in a hexagonal aluminum block, with SMAs radiating out. I was able to build a prototype that worked acceptably, using only PC mount SMAs soldered together. I'd have a lot of confidence, based on that, that I could make one that would work quite well to 1.3GHz even without much in the way of test equipment to check it.

And you should have no trouble at all making some very decent loads using the techniques others have mentioned. FWIW, I've had better luck using two 100 ohm SMTs radially opposed than using four 200 ohm SMTs with 90 degree spacing. I didn't investigate just why, but assumed it had to do with the parasitics inherent in the parts.

Cheers,
Tom

(I'm a bit surprised you need a three-way splitter. Are you measuring two DUT paths simultaneously??)

333. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 20:55:03 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43c2cda6$0$19688$8fcfb975@news.wanadoo.fr>
Source record: 65495

Hi John,

The "Center Feeded Dipole" (feeding with twin-leads) would give you better performances and no TVI.

But if you prefer the G5RV do not use any balun (with magnetic stuff). In somme cases, baluns brings losses (if high SWR on the line). You may find many people that will say that their G5RV works perfectly well with a balun .... they are lucky !!!
It is better to connect the coax directly to your antenna tuner.

Good luck

Jean-Marc
F4DRH
www.barbaxoops.com

"jawod" <jawod@fuse.net> a crit dans le message de news:
184c4$43c1dc66$42a1bfc2$11376@FUSE.NET...
> The G5RV antenna can be found by googling. Anyone using this arrangement.
> It uses a coax feed to balanced feed (which variously acts as radiating
> elements, depending on the band). The author says a balun is not needed
> but then describes an RF choke that sounds a lot like a balun. I am also
> concerned about TVI with this system.
>
> John

334. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 20:55:39 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpuikb$4u2$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65494

"Cecil Moore" wrote -
> Except Rhombics, of course. :-)
==========

Cecil, get yourself up to date.

A terminated rhombic is only 50 percent (or even less) efficient.

It transmitts to, and receives from, only half of the available directions. A wicked waste of power. I can't imagine why anybody bothers to use one which is not rotateable.

Have you ever erected a 160-meter or 80-meter or even a 40-meter rotateable rhombic? <smiley>

Reg, G4FGQ.

335. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 21:05:39 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <0mj5s1drlbpogbeppah6uocoirehpte0pi@4ax.com>
Source record: 65496

On Mon, 9 Jan 2006 20:55:39 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>
>"Cecil Moore" wrote -
>> Except Rhombics, of course. :-)
>==================================
>
>Cecil, get yourself up to date.
>
>A terminated rhombic is only 50 percent (or even less) efficient.

Actually, that is not true.

A big enough rhombic is nearly self-terminating. The energy radiated
is not available to the terminating resistor and thus is not -lost-.

>It transmitts to, and receives from, only half of the available
>directions. A wicked waste of power. I can't imagine why anybody
>bothers to use one which is not rotateable.
>
>Have you ever erected a 160-meter or 80-meter or even a 40-meter
>rotateable rhombic? <smiley>

I completed my 2-meter Worked All Continents award by working VK5MC,
who was using stacked rhombics (350 feet/leg), partially steerable by
a rope and pulley arrangement. Worked for me [g].

336. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 21:46:09 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpulj1cgb1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65497

```
"Wes Stewart" <n7ws*@*yahoo.com> wrote in message
news:0mj5s1drlbpogbeppah6uocoirehpte0pi@4ax.com...
> On Mon, 9 Jan 2006 20:55:39 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>
> >
> >"Cecil Moore" wrote -
> >> Except Rhombics, of course. :-)
> >==================================
> >
> >Cecil, get yourself up to date.
> >
> >A terminated rhombic is only 50 percent (or even less) efficient.
>
> Actually, that is not true.
>
> A big enough rhombic is nearly self-terminating. The energy
radiated
> is not available to the terminating resistor and thus is not -lost-.
>
> >It transmitts to, and receives from, only half of the available
> >directions. A wicked waste of power. I can't imagine why anybody
> >bothers to use one which is not rotateable.
> >
> >Have you ever erected a 160-meter or 80-meter or even a 40-meter
> >rotateable rhombic? <smiley>
>
> I completed my 2-meter Worked All Continents award by working VK5MC,
> who was using stacked rhombics (350 feet/leg), partially steerable
by
> a rope and pulley arrangement. Worked for me [g].
>
========================================
Wes, of course it worked. You would have done even better had it not
been terminated.
========================================
```

337. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 21:46:35 UTC
From: jawod <jawod@fuse.net>
Message-ID: <43C2D9BB.9060804@fuse.net>
Source record: 65498

F4DRH wrote:
> Hi John,
>
> The "Center Feeded Dipole" (feeding with twin-leads) would give you better
> performances and no TVI.
>
> But if you prefer the G5RV do not use any balun (with magnetic stuff). In
> somme cases, baluns brings losses (if high SWR on the line). You may find
> many people that will say that their G5RV works perfectly well with a balun
> .... they are lucky !!!
> It is better to connect the coax directly to your antenna tuner.
>
> Good luck
>
> Jean-Marc
> F4DRH
> www.barbaxoops.com
>
>
>
>
>
>
> "jawod" <jawod@fuse.net> a ï¿½crit dans le message de news:
> 184c4$43c1dc66$42a1bfc2$11376@FUSE.NET...
>
>>The G5RV antenna can be found by googling. Anyone using this arrangement.
>>It uses a coax feed to balanced feed (which variously acts as radiating
>>elements, depending on the band). The author says a balun is not needed
>>but then describes an RF choke that sounds a lot like a balun. I am also
>>concerned about TVI with this system.
>>
>>John
>
>
>
Thanks to all for advice!

It seems likely that, as I re-enter ham radio, I will be using a rig
with an SO-239 plug as an output. The unit I am considering has an
internal ATU. So, it would appear likely that SOME coax will be used.
I've read articles that indicate a simple PVC pipe wound with 20 or so
turns of coax is sufficient for a coax to dipole configuration.

I guess I am trying to have a multiband dipole antenna that uses the low-loss ladder line as part of the antenna on some bands. This seems consistent with the G5RV.

Any thoughts on other designs to accomplish this? Many articles seem to steer clear of series traps in the dipole. I must have TVI as a high potential concern..

Anyway THANKS!

Jean-Marc: nice antenna system...your twin lead looks like coax...is it?

john

338. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 21:55:17 UTC
From: Charles Schuler <charleschuler@comcast.net>
Message-ID: <PuadnYhEAJFWRI_eRVn-sQ@comcast.com>
Source record: 65499
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

> A true windom with a single wire feed, or one of the latter-day kind with
> twinlead?

Single wire feed. I was a student (living off of my wife) and used what I
could get my hands on.

339. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:04:39 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43c2ddf8$0$20163$8fcfb975@news.wanadoo.fr>
Source record: 65500

>
> Jean-Marc: nice antenna system...your twin lead looks like coax...is it?
>
> john

Hi John,

Here is my twin lead detail:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=57&album=7&pos=2

... and the twin lead installed on the center feed (click on picture to
enlarge):
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=5&album=7&pos=4
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=5&album=7&pos=4

The antenna tuner (MacCoy):
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=46&album=7&pos=0

Good luck

Jean-Marc
F4DRH
www.barbaxoops.com

340. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:12:10 UTC
From: nm5k@wt.net
Message-ID: <1136844730.293136.96470@g14g2000cwa.googlegroups.com>
Source record: 65501

>Maybe the only one? :-) The G5RV, with tuner, is a pretty
>good 80m, 40m, 20m, and 12m antenna.

Depends what you compare it to... I bet my paralleled
80/40/20 dipoles would beat it on all those bands.
Maybe even 12m. I'm not going to lose too awful much
even though I'm running 213 coax. You may have some
cases on the higher bands where the gain may be
better than the dipoles in some directions, but thats still
not a matter of efficiency.

>If the series section
>is varied from 20 feet to 36 feet, it becomes a very good
>all-HF-band antenna. With the addition of a parallel 1000pf
>capacitor with the series section at 22 feet, on 75m my "G5RV"
>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.

You would be the exception to the rule. And I still really doubt
it's the total equal of a simple coax fed dipole on 80m.
The "usual" G5RV that most people tend to buy and run
is one of the most pathetic 80m antennas I've ever used
in my life. Truly a disgusting POC...:(I had the mispleasure
of being stuck on the G5RV at not one, but two field days
in a row. I'd never experienced working FD on a dummy
load until that time. I lost about 3 mm of tooth due to the
constant grinding of my teeth on those weekends.
After that, I *swore* I would never, ever, be stuck on
one of those things ever again. Never, nada, zilch.
Now, I've heard people that had fairly decent signals
with various perversions of the G5RV, but again, they
seem to modify them to work halfway well, and many
run amps, which also help them look a bit better than
they really are. If people want to run those, be my guest,
but keep them at least 500 yards from me. I'll be using
my usual coax fed dipoles.
This trails off to the "carolina" windoms that many people
run in the same appx manner.
Well, on the first FD after the two G5RV nightmares,
I brought all my own stuff to build dipoles on the spot.
I got to the FD, and the first antenna they suggested I
use was a carolina windom that was up in the air
pretty well. Maybe 50 ft up or more. It was fed with
the usual "clutter" and a tuner. "tuner/coax/choke/antenna.
I can't remember if any ladder line was involved on
that one...

Anyway, the first thing out of my mouth was *NO!!!!!".
I'll build a regular ole dipole, thanks, but no thanks.
Not trying to be rude, but I'd had my fill of dummy loads.
Anyway, I built a 40 meter dipole on the spot, and
threw it up in a different tree. It was actually lower
in height than the windom. I then brought out a coax
switch, and hooked both the windom, and the coax
fed dipole to the rig. Now, at first glance, you
would think the windom was doing all the good.
It was "working", and seemed to be just fine.
But then, I'd switch over to the dipole, and
everything would jump 2 S units on that radio.
All signals, noise floor, the whole shooting match.
The windom owner like to fell over. He had no
idea that he was taking that big a hit vs a simple
dipole. Needless to say, the windom wasn't used
after that test. People can run whatever they want,
but many have delusions that these "compromise"
clutter fed all band antennas are just as good as a
simple dipole. It's rarely the case by what I've seen.
Did you actually compare with a coax fed dipole
using a switch, etc? If not, saying it's equal is
just theory at this point. I'd have to see it to believe
it... :/ Heck, I see the difference from a properly fed
tuner/ladderline/dipole setup vs a coax fed dipole.
The coax fed always wins here by a slight amount.
As far as I'm concerned, a coax fed dipole is as good
as you can get in the real world on those lower bands as
far as system efficiency. In the 95+% bracket I think.
Your tunerless setup may be equal, but that's
not the usual setup for most people. Most use
a tuner also. I use the coax fed dipole as the benchmark
by which all others are measured on 80m. Most all lose,
unless they are a gain antenna like arrays or whatever.
Of course, with the dipoles on 80m, I'm usually talking
NVIS, or medium distances. I'm not a dxer much.
But...I had no problem at all taking to EU this past
winter on that dipole in the couple of times I tried
it down in the dx window. . No amp. I haven't run an amp
in 5 years. First call and solid copy too. I forgot where
they were. I think one on G land. One in Spain, germany,
etc..With just 90-100w from the 706. :) But a big NVIS
signal is really what I shoot for. Can't get much better
than a coax fed dipole or loop. Simple is best I think. :)
MK

341. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:18:57 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpungihjr1@engnntp2.cig.mot.com>
Source record: 65509
Cross-posted to: aus.radio.amateur.misc,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc

Gary,
I'm in the process of finishing a new display for my "Roanoke Doppler".
Do a search on that name and you'll get many hits. For just the antenna,
the Homing In Web site has info on both main types in common use. I'm not
sure what the Dick Smith does, but perhaps Homing-In talks about it.

Homing In is the place to start:
http://members.aol.com/homingin/index.html

It has antenna system (typically 1/4 wave whips for the Ham units)
references:
Down a ways on the main page under Home Built:
http://members.aol.com/homingin/newdopant2.html

This specificlly addresses the Dick Smith unit:
http://members.aol.com/homingin/DSEfix.html

You can always email K0OV.

73, Steve, K,9.D;C'I

"Gary Smith" <mygrps@aapt.net.au> wrote in message
news:dps7ihcj1@news-01.bur.connect.com.au...
> Dave, if i had a manual with info on how to build one i'd be down the
> electronics shop getting the bits and building one as we speak :>
>
> Gary
>
> "Dave" <noone@nowhere.com> wrote in message
> news:Aq-dnVewhKvCg1zeRVn-jw@crocker.com...
> > they never came with antennas that i know of, you had to build them
> > yourself. the plans for the asu including circuit board and parts list
> > are in the manual, they are simple things that you should be able to
find
> > at any radio parts store... assuming you can find one of those today.
>
>

342. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:24:30 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpunquhtj1@engnntp2.cig.mot.com>
Source record: 65508
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc

"Glenn McAllister" <"(callsign)"@orcon.net.nz> wrote in message
news:43C18707.12BE@orcon.net.nz...
> ...
> The ones in the box switch one of the antennas at a time to the RDF, and
> the ones at the base of the antennas groung the out-of-use antennas.
>
> Glenn ZL2TLD

The standard advise from K0OV is to NOT ground the unused antennas, but to leave them open which is in a non resonant state. This is so they have minimal effect on the active antenna and thus do not act like a parasitic element. I'm not sure why, but he recommends having NO amplitude (pattern) effects in your system.

73, Steve, K9DCI.

343. Re: Transmission line help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:27:20 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpuo08$i08$1@engnntp2.cig.mot.com>
Source record: 65507

Don't you mean Z_naught (meaning Z0 a.k.a. Z sub zero)? Z_not sounds like
an active-low digital signal line.

73, Steve, K9DCI

"Cecil Moore" <mycall@arrl.net> wrote in message
news:vaQvf.3981$fb4.1628@newssvr14.news.prodigy.com...
> moatesim@gmail.com wrote:
> > I am self studying transmission lines and I can't figure out this
> > problem. Given Z(r), Z_not, and 'd' you are asked to find Tau(d). To my
> > understanding, Tau(d) is 1+ Z_r(normalized with Z_not) divided by (1 -
> > Z_r(normalized by Z_not)). For the data I had, I don't get the phase of
> > Tau(d) correct. I would really appreciate if you could point out where
> > I am making the mistake or explain it to me the correct way to
> > calculate Tau(d).
>
> Different texts use different subscripts. Is Z(r) the load
> impedance and Z_not the characteristic impedance? What is 'd'?
> Are you using a Z-parameter analysis?
>
> From "Fields and Waves in Communication Electronics", by Ramo,
> Whinnery, and Van Duzer, page 28:
>
> rho = (ZL-Z0)/(ZL+Z0) = Vref/Vfor
>
> tau = 2*ZL/(ZL+Z0) = (Vfor+Vref)/Vfor
>
> where rho is the voltage reflection coefficient and tau is the
> voltage transmission coefficient. ZL is the load impedance and
> Z0 is the characteristic impedance of the transmission line.
> --
> 73, Cecil http://www.qsl.net/w5dxp

344. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:29:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpuo55isc1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65502
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

> Single wire feed. I was a student (living off of my wife) and used
what I
> could get my hands on.
==========

A true radio amateur!

Just get a random, bent wire into the air. A single-wire feed helps a
lot. With a modest ground and a simple tuner you have an efficient,
multi-band, go-anywhere antenna system you can be proud of.

Anybody who boasts about his G5RV has never tried anything else.

Reg.

345. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:33:36 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <72p5s15hpr0eos67c35nqd9i294ouognju@4ax.com>
Source record: 65503

On Mon, 9 Jan 2006 22:29:58 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Anybody who boasts about his G5RV has never tried anything else.

Sounds like the text for a bumper sticker!

Owen
--

346. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:34:06 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpuocu$ib1$1@engnntp2.cig.mot.com>
Source record: 65506

David,

Be careful of that "Match Efficiency" number read out by the MFJ. I
don't remember what they are showing, but I do remember there was a caution
in their manual about just what it was and that it was a rather crude
indicator. Some over simplified readout.

73, Steve, K,9.D;C'I

"David" <webreply@orbitcoms.com> wrote in message
news:3rCuf.167640$V7.100747@news-server.bigpond.net.au...
> Amos,
>
> The circuit is passive (R/L/C) only. I would not expect any non-linearity.
>
> I suspect the previous post may have been correct. The match was over a
> large ratio of impedance (50 Ohms to 4500 Ohms). I expect the small
> value of inductor and reasonably low Q was limiting the performance of
> the circuit.
>
> I tried the match again from 50 Ohms to 800 Ohms as a test and found the
> MJ-269 showed match efficiency of 90% with SWR dropping to 1.8. These
> results are much better.
>
> Regards
>
> David
>
> Amos Keag wrote:
> > Have you considered that there may be non-linear effects in the test set
> > up?
> >
> > The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
> > Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.
> >
> > AK
> >
> > David wrote:
> >
> >> Hi,
> >>
> >> I have a matching circuit that matches 50 Ohms to 4500 Ohms in
> >> parallel with 2.5pF at 45MHz.
> >>
> >> The coil was measured at 147nH with a Q of 50 at 45 MHz.

> >>
> >> The circuit is a C-Tap typology with following values.
> >>
> >> Tap input to ground = 784pF
> >> Tap to hot side of coil = 92pF
> >> Par inductor = 147nH
> >>
> >> My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
> >>
> >> I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
> >>
> >> A 4k7 resistor and 2p2 cap were placed across the output to simulate
> >> the correct load.
> >>
> >> The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
> >> calculated values).
> >>
> >> When installed on the IF front end, the expected sensitivity is
> >> achieved when tuned. This would indicate most of the signal must be
> >> getting through or sensitivity would be effected due to mismatch.
> >>
> >> All seems to look ok but when I attach the MJF-269 Analyzer I get
> >> impedance of 280 angle 35 degrees (240 -j 179) for the impedance, I
> >> get SWR = 6.1 , return loss of 2.8dB and match efficiency of 48%.
> >>
> >> I cannot understand why there is such a discrepency between the design
> >> values and tested results (using sig gen, spectrum analyzer and power
> >> meter) compared to the MJF-269.
> >>
> >> Is there something I am doing wrong here or is it a mis-interpretation
> >> of displayed values ?
> >>
> >> Thanks for any help.
> >
> >

347. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:37:08 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <U4CdnfLHoYgTeF_eRVn-hw@comcast.com>
Source record: 65504

Reg Edwards wrote:
> "Cecil Moore" wrote -
>
>>Except Rhombics, of course. :-)
>
> ==========
>
> Cecil, get yourself up to date.
>
> A terminated rhombic is only 50 percent (or even less) efficient.
>
> It transmitts to, and receives from, only half of the available
> directions. A wicked waste of power. I can't imagine why anybody
> bothers to use one which is not rotateable.
>
> Have you ever erected a 160-meter or 80-meter or even a 40-meter
> rotateable rhombic? <smiley>
> ----
> Reg, G4FGQ.
>

Reg, during the Vietnam War we used a terminated rhombic from the State of Utah [USA desert area] to SEA [AKA Vietnam]as part of the antenna farm at AGA5HI [USAF MARS Gateway Station] for phone patch traffic. It would outperform the Yagi and the LP antenna.

I was AFF1C TDY at AGA5HI [Hill Air Force Base, Utah]

I don't believe there is a net loss of gain in the preferred direction. If one loses -3 dB in the resistor, does one not waste -3 dB in the non-preferred direction [180 degrees from the desired direction]?

348. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 22:38:38 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dpuoleifb1@engnntp2.cig.mot.com>
Source record: 65511

I don't understand being "on the same level" AND being "20 feet below".

73, Steve, K,9.D;C'I

I've been working in RF and transmitters for many years and I can say that
there are absolutely no side eff eff eff effects.
*(:-)

"Thierry" <lombryt@hotmail.com> wrote in message
news:1136722082.927929.234700@o13g2000cwo.googlegroups.com...
> OK Thanks Howard and the others.
> I have well an article on my website about EMR and health but I hadn't
> data about radar.
>
> Still thanks
> Thierry
>

349. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 23:04:05 UTC
From: Anthony Fremont <spam@anywhere.com>
Message-ID: <FZBwf.39022$9e.30720@tornado.texas.rr.com>
Source record: 65505
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Reg Edwards" wrote
> > Single wire feed. I was a student (living off of my wife) and used
> what I
> > could get my hands on.
> ======================================
>
> A true radio amateur!
>
> Just get a random, bent wire into the air. A single-wire feed helps a
> lot. With a modest ground and a simple tuner you have an efficient,
> multi-band, go-anywhere antenna system you can be proud of.
>
> Anybody who boasts about his G5RV has never tried anything else.

Right.....you should hear the bands open up when you launch a kite
antenna. There's nothing like a few hundred feet of random long wire up
in the air. ;-)
WARNING: No one should ever do such a thing for what should be very
obvious safety reasons.

I'm a big fan of cubical quads, but you need allot of room for them.
I'd take one over a yagi any day. I built a two element quad for 10
meters using bamboo fishing poles for the spreaders. The boom was made
from cedar. It lasted about three years before a flying tree limb took
it out. I also made an 8 element quad for 2 meters using 1/2" poplar
dowel rod spreaders and a wooden boom as well. Man was that thing hard
to tune. Weird things happen after the fifth element is added for some
reason. Might explain why most have only 4 elements. ;-) Seriously,
it really kicked ass but the tornadic storm took it out too. I'll not
be making another with that many elements, too fussy but extremely
narrow beam w/incredible back side rejection.

350. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 23:20:34 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11s5ru2qve3vje9@corp.supernews.com>
Source record: 65510

Don't get too hung up on efficiency. What counts is signal strength. Suppose you have a bidirectional antenna. Unless you're talking to two people in opposite directions at the same time, it doesn't matter if the antenna is 100% efficient and half the power goes into an unused reverse lobe or whether it goes into a resistor which makes the antenna 50% efficient. The result is exactly the same as far as the other station is concerned. So to the extent that the rhombic isn't optimal, it's because it's inherently bidirectional, not necessarily because it's inefficient.

A bidirectional antenna is usually not an optimum choice. For the same number of elements or same amount of real estate, you can usually make a unidirectional antenna which has a single main lobe of about the same width but 3 dB greater gain. Or, you can have a main lobe of about the same gain as before but greater width, which is an advantage when the antenna can't be rotated. However, this doesn't say anything about simplicity, which is the main attractiveness of a rhombic, along with its bandwidth.

Roy Lewallen, W7EL

351. Re: Still have problems reading MJF-269 Analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 23:38:43 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <7uCwf.212503$V7.141570@news-server.bigpond.net.au>
Source record: 65512

Steve,

The MJK unit is now giving sensible results.

I changed the match from 4500 to 800 Ohms. I think the inductor Q at the
higher ratio
of impedance transform was not high enough. Matching to lower impedance
only required a Q of around 8.

Steve Nosko wrote:
> David,
>
> Be careful of that "Match Efficiency" number read out by the MFJ. I
> don't remember what they are showing, but I do remember there was a caution
> in their manual about just what it was and that it was a rather crude
> indicator. Some over simplified readout.
>
> 73, Steve, K,9.D;C'I
>
>
> "David" <webreply@orbitcoms.com> wrote in message
> news:3rCuf.167640$V7.100747@news-server.bigpond.net.au...
>
>>Amos,
>>
>>The circuit is passive (R/L/C) only. I would not expect any non-linearity.
>>
>>I suspect the previous post may have been correct. The match was over a
>>large ratio of impedance (50 Ohms to 4500 Ohms). I expect the small
>>value of inductor and reasonably low Q was limiting the performance of
>>the circuit.
>>
>>I tried the match again from 50 Ohms to 800 Ohms as a test and found the
>>MJ-269 showed match efficiency of 90% with SWR dropping to 1.8. These
>>results are much better.
>>
>>Regards
>>
>>David
>>
>>Amos Keag wrote:
>>
>>>Have you considered that there may be non-linear effects in the test set
>>>up?
>>>

>>>The MFJ uses several to ten milliwatts in it's circuitry [+10 dBm].
>>>Sensitivity is generally measured at the pico-watt [~ -130 dBm] level.
>>>
>>>AK
>>>
>>>David wrote:
>>>
>>>
>>>>Hi,
>>>>
>>>>I have a matching circuit that matches 50 Ohms to 4500 Ohms in
>>>>parallel with 2.5pF at 45MHz.
>>>>
>>>>The coil was measured at 147nH with a Q of 50 at 45 MHz.
>>>>
>>>>The circuit is a C-Tap typology with following values.
>>>>
>>>>Tap input to ground = 784pF
>>>>Tap to hot side of coil = 92pF
>>>>Par inductor = 147nH
>>>>
>>>>My design calculations predict Loaded Q = 26 and BW = 1.7 MHz.
>>>>
>>>>I used a 50p trimmer in par with 68pF cap for top of tap to fine tune.
>>>>
>>>>A 4k7 resistor and 2p2 cap were placed across the output to simulate
>>>>the correct load.
>>>>
>>>>The test results show BW = 1.7 MHz and Loaded Q = 24.7 (agree with
>>>>calculated values).
>>>>
>>>>When installed on the IF front end, the expected sensitivity is
>>>>achieved when tuned. This would indicate most of the signal must be
>>>>getting through or sensitivity would be effected due to mismatch.
>>>>
>>>>All seems to look ok but when I attach the MJF-269 Analyzer I get
>>>>impedance of 280 angle 35 degrees (240 -j 179) for the impedance, I
>>>>get SWR = 6.1 , return loss of 2.8dB and match efficiency of 48%.
>>>>
>>>>I cannot understand why there is such a discrepency between the design
>>>>values and tested results (using sig gen, spectrum analyzer and power
>>>>meter) compared to the MJF-269.
>>>>
>>>>Is there something I am doing wrong here or is it a mis-interpretation
>>>>of displayed values ?
>>>>
>>>>Thanks for any help.
>>>
>>>
>

>

--

Kind Regards

David Huisman
General Manager

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352. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-09 23:54:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CICwf.18933$UF3.8278@newssvr25.news.prodigy.net>
Source record: 65513

Reg Edwards wrote:
> A terminated rhombic is only 50 percent (or even less) efficient.

But it's 50% in the bad direction, not the good direction. :-)
--
73, Cecil http://www.qsl.net/w5dxp

353. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 00:15:30 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <C0Dwf.18938$UF3.16591@newssvr25.news.prodigy.net>
Source record: 65514

nm5k@wt.net wrote:

>>The G5RV, with tuner, is a pretty
>>good 80m, 40m, 20m, and 12m antenna.

> Depends what you compare it to... I bet my paralleled
> 80/40/20 dipoles would beat it on all those bands.

Not by enough to notice on the other end. The G5RV has
a slight amount of gain over your 40m dipole. It has
low loss on the ladder-line matching section and an SWR
of less than 4:1 on the RG-213 coax. Where are the losses?

>>If the series section
>>is varied from 20 feet to 36 feet, it becomes a very good
>>all-HF-band antenna. With the addition of a parallel 1000pf
>>capacitor with the series section at 22 feet, on 75m my "G5RV"
>>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.
>
> You would be the exception to the rule. And I still really doubt
> it's the total equal of a simple coax fed dipole on 80m.

It's a 3/8WL dipole on 75m, fed with low-loss ladder-line,
a parallel door knob cap, and an SWR of 1.3:1 on the RG-213
coax. Where are the losses?

> The "usual" G5RV that most people tend to buy and run
> is one of the most pathetic 80m antennas I've ever used
> in my life.

Well, maybe. The one I bought in 1988 was well designed with
a w2du balun and RG-8x coax. It worked well with a tuner and
I made lots of improvements as I learned more about it.

There was probably something wrong with the particular G5RV's
that you have been exposed to.

Some people run a 4:1 balun at the coax/twinlead junction on
a G5RV. That's the absolute worst thing to do on 75m as the
impedance at that point is already low at 16 ohms.
--
73, Cecil http://www.qsl.net/w5dxp

354. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 00:21:30 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <e6Dwf.18941$UF3.4834@newssvr25.news.prodigy.net>
Source record: 65515
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Reg Edwards wrote:
> Anybody who boasts about his G5RV has never tried anything else.

Reg, I replaced my 130 ft. dipole with a G5RV so I could
experiment with it. Given my modifications, Nobody can tell
it from the 130 ft. dipole so there's no reason to return
to the 130 ft. dipole. My G5RV has an SWR of less than 2:1
on all eight HF bands.
--
73, Cecil http://www.qsl.net/w5dxp

355. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 00:50:58 UTC
From: Bill Booth <710138@ican.net>
Message-ID: <7dc71$43c304f3$d169d0f4$29410@PRIMUS.CA>
Source record: 65516

> If SETUP right , There the best HF I've ever used.
>

I agree ..... the only HF wire antenna I have ever used. You have to pay close attention to the matching at 20m and then it works great. I use 300 ohm ladder line for the feed as I find that works the best. Build one and try it out ....then you can see for yourself.

--
Bill Booth VE3NXK
Sundridge ON, Canada
79.23.37 W x 45.46.18 N
FN05ns

Visit my weather WebCam at http://www.almaguin.com/wxcurrent/weather.html

356. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 00:57:10 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpv0p6$b9l$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65517

"Cecil Moore" wrote
> Reg Edwards wrote:
> > A terminated rhombic is only 50 percent (or even less) efficient.
>
> But it's 50% in the bad direction, not the good direction. :-)
==========

In the most simplistic of terms, a rhombic consists of four
1/2-wavelength wires plus a lossy resistor which gets hot.

If the four 1/2-wavelength wires are rearranged to form a dipole, plus
a reflector, plus two directors, we have only one good direction in
which 100% of the power is radiated. Nothing gets hot.

Common sense prevails. No need to refer to Eznec. Even a drunken
old-wife would know which arrangement to choose, if only because it
saves the cost and fitting of a high power, non-reactive resistor.
;o)

But no doubt US Army Field Manuals still call upon rhombics.

Reg.

357. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 01:18:15 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dpv20n$2oh$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65518
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Cecil Moore" wrote
My G5RV has an SWR of less than 2:1
> on all eight HF bands.
==

The CIA W.M.D. department must have told you that naughty fib.

The SWR on your 380-ohm transmission line to the antenna is umpteen
times greater than that!

Isn't it time you changed the name of your SWR meter?

Reg.

358. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 01:28:03 UTC
From: dplatt@radagast.org
Message-ID: <11s63d3hf8jjqe3@corp.supernews.com>
Source record: 65519

In article <dpv0p6$b9l$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>,
Reg Edwards <g4fgq,regp@ZZZbtinternet,com> wrote:

>In the most simplistic of terms, a rhombic consists of four
>1/2-wavelength wires plus a lossy resistor which gets hot.

And, in this case, I think the "most simplistic terms" are a
misapplication of the way the term is usually used.

My recollection is that in practice, rhombics of the sort being
referred to have arms which are several wavelengths long. The total
double-arm-length of a wire rhombic is often 10 wavelengths or more.

In this sort of rhombic, the great majority of the transmitted power
is radiated before it reaches the termination resistor. There is little
power left to dissipate in the resistor. If the rhombic were
unterminated, and the forward-travelling wave were reflected at the
end of the rhombic, most of this reflected power would be radiated
before it reached the transmitter and were re-reflected.

Dissipating the remaining (small) amount of forward wave at the end of
the rhombic helps maintain a very high front-to-back ratio. This can
be advantageous both when transmitting (no back-spill) and when
receiving. I believe that rhombics were popular among U.S. government
radio sites for use at coastal sites, for precisely this reason - they
were very good at rejecting QRM from landside transmitters, and didn't
blast landside receivers with high power.

Long, terminated rhombics have another advantage - they maintain a
consistent directionality and feedpoint impedance over a wide range of
frequencies... rather wider than you can do with a resonant
standing-wave antenna such as a reflector/DE/directors beam.

>Common sense prevails. No need to refer to Eznec. Even a drunken
>old-wife would know which arrangement to choose, if only because it
>saves the cost and fitting of a high power, non-reactive resistor.

If you're insisting that a "rhombic" may have arms of no longer than
1/2 wavelength, I'd agree.

Since that's not the only way to design 'em, though (and is not how
some of the better-known ones were designed), I think that your
conclusion is overbroad.

It's all a matter of serving your needs, whatever they may be. If
you're limited on space, and/or want a steerable beam, then a Yagi or
similar is probably the best choice. I certainly wouldn't try to put

up an effective HF rhombic on my roof!

If you've got oodles of space, want to listen (or transmit) only in a single direction, need a lot of front-to-back isolation, and want a broad bandwidth and consistent radiation patterns and a considerable amount of gain, then a long-armed terminated rhombic may be a better choice than the alternatives (e.e. a honking-big LPDA).

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

359. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 01:39:44 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <f136s157nvk19et8rsv3veagenkkb07n5s@4ax.com>
Source record: 65520

On Mon, 09 Jan 2006 15:50:20 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Ricke wrote:
>> If SETUP right , There the best HF I've ever used.
>
>Maybe the only one? :-) The G5RV, with tuner, is a pretty
>good 80m, 40m, 20m, and 12m antenna. If the series section
>is varied from 20 feet to 36 feet, it becomes a very good
>all-HF-band antenna. With the addition of a parallel 1000pf
>capacitor with the series section at 22 feet, on 75m my "G5RV"
>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.

Now that is one of those things about a G5RV, no two are alike.

What are the key factors that "define" a G5RV? The things that I recall from Varney's article were:

- 31m long dipole
- centre fed
- flat top / inverted V
- open wire section of half wave length on 20m, from his physical description, Zo about 520 ohms, but IIRC he suggests Zo is not critical
- undefined length of either coax of open wire line of undefined, but low Zo (50 - 120 ohms though he seemed to think figure 8 flex has a lower Zo than it probably does).
- balun or no balun at the coax to open wire line transition, depending on his article, he changed his mind.

My question is how many of these characteristics can be dispensed with, or varied significantly and still legitimately speak of it as a G5RV?

I am watching the argument between those who swear by a G5RV and those who swear at a G5RV and suspect that one of the reasons (and not the only reason) is they are not talking about the same thing.

There is a tendency to call anything with a ~30m centre fed dipole a G5RV, and yet that component's pattern is independent of everything else (excluding feedline radiation) and its efficiency is quite good independently of everything else. It is "everything" else that contains the losses that result from the dipole's feedpoint load impedance, and it is the "everything else" that makes or breaks the antenna.

Owen
--

360. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 02:36:47 UTC
From: DOUGLAS SNOWDEN <snowden@peoplepc.com>
Message-ID: <35Fwf.5377$%W1.4601@newsread2.news.atl.earthlink.net>
Source record: 65521

Thanks for the input, but my tower is tapered and by the time the hazer moved from bottom to top there would be too much slop. That is why I need some sort of rail system.

Doug N4IJ

"'Doc" <w5lz@cwis.net> wrote in message news:Kjrwf.2251$801.676@newssvr30.news.prodigy.com...
> DOUG,
> Depending on how you build the 'hazer', you really don't need
> rails. The thing will slide up the tubes of the tower just fine,
> won't even bump on the bolts (much). Also sort of depends on just
> how 'much' antenna is used and how often it goes up/down, since
> there is some wear on the tower. 'Normal' use shouldn't be any
> problem though.
> A friend built one for me. Not aluminum, and aside from building
> muscles I didn't particularly want, worked fine.
> 'Doc

361. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 02:42:26 UTC
From: nm5k@wt.net
Message-ID: <1136860946.696895.50410@g44g2000cwa.googlegroups.com>
Source record: 65522

> Depends what you compare it to... I bet my paralleled
> 80/40/20 dipoles would beat it on all those bands.

>Not by enough to notice on the other end.

So you say. If I can tell the difference between a tuner/
ladderline fed dipole vs a coax fed dipole, I bet I could
tell the difference. But I use the receiver, and switch
between the antennas. Much more accurate than
relying on reports.

>The G5RV has a slight amount of gain over your 40m dipole.

That just means I'm almost sure to be louder in the
other two directions.. :/

>It has
>low loss on the ladder-line matching section and an SWR
>of less than 4:1 on the RG-213 coax. Where are the losses?

At the ladderline/choke/coax junction I would suspect.

> You would be the exception to the rule. And I still really doubt
> it's the total equal of a simple coax fed dipole on 80m.

>It's a 3/8WL dipole on 75m, fed with low-loss ladder-line,
>a parallel door knob cap, and an SWR of 1.3:1 on the RG-213
>coax. Where are the losses?

Does that version use the choke? Being the data is incomplete,
hard to say at this point. But if there is loss, I can probably
find it.. :/

> The "usual" G5RV that most people tend to buy and run
> is one of the most pathetic 80m antennas I've ever used
> in my life.

>Well, maybe. The one I bought in 1988 was well designed with
>a w2du balun and RG-8x coax. It worked well with a tuner and
>I made lots of improvements as I learned more about it.

Hummm...Does that mean it's not really a G5RV anymore?

>There was probably something wrong with the particular G5RV's
>that you have been exposed to.

No doubt about it.

Some people run a 4:1 balun at the coax/twinlead junction on
a G5RV. That's the absolute worst thing to do on 75m as the
impedance at that point is already low at 16 ohms.

I bet those did use a 4:1...Kinda makes sense as they were
the absolute worst wire antennas I'd ever used on 80m.
But like Owen points out, you have so many perversions
of the G5RV, it's hard to tell what is what. I *think* the
versions I used were made by the same company that
makes the carolina windoms, but not sure. I don't
really keep up with antennas I know I'll never be using.. :/
What boggles my mind is why people would want to use
a compromise antenna at a field day, when you have
enough room to fit 49 full size antennas... :/
Or at home for that matter.. If I have room for full size
antennas, I'm gonna use them. Life is too short for
compromise antennas. I guess I'm spoiled. I've never
had to run those funky things due to lot size, etc..
Even if I did, I think I could cook up something better
than the usual G5RV. Whatever I use will never mix
feedline types midroute to the antenna, I know that
for sure. It's like a crapshoot hoping things will pan
out at the junction. I couldn't live that way. :(
MK

362. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 04:57:02 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <y8Hwf.15610$oW.13838@newssvr11.news.prodigy.com>
Source record: 65523
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Reg Edwards wrote:
> "Cecil Moore" wrote
>> My G5RV has an SWR of less than 2:1
>>on all eight HF bands.
>
> The SWR on your 380-ohm transmission line to the antenna is umpteen
> times greater than that!

I'm not talking about SWR on the series section transformer,
Reg, I'm talking about on the 50 feet of RG-213. And it's
not "umpteen times", rather limited to about ten times.

> Isn't it time you changed the name of your SWR meter?

Nope, for a G5RV with the nominal 70 feet of 50 ohm coax,
the SWR meter is indeed reading the SWR on the coax.
Remember, I'm not using a tuner. The coax from the G5RV
goes directly to the transceiver through the SWR meter.
I actually use my SWR meter to display the SWR.
--
73, Cecil http://www.qsl.net/w5dxp

363. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 05:13:05 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <BnHwf.15612$oW.1939@newssvr11.news.prodigy.com>
Source record: 65524

Owen Duffy wrote:
> My question is how many of these characteristics can be dispensed
> with, or varied significantly and still legitimately speak of it as a
> G5RV?

Well, with G5RV himself recommending ladder-line all the way
to the transmitter (ARRL Antenna Compendium #1) "If this form
(of the G5RV) is employed, almost any length (of balanced line)
may be used from center of the antenna to the matching network
(balanced) output terminals", the paintbrush is pretty broad.

I started out with a standard G5RV and modified it on a per
band basis to perform on all eight HF bands. 36 ft. of ladder-
line works on both 40m and 17m, my two favorite bands. When I
switch to 75m, I use 23 ft. of ladder-line with a parallel
1000pf cap. I call that the *PC-50* point, the point at which
a (P)arallel (C)apacitor will cause a match to (50) ohms.
--
73, Cecil http://www.qsl.net/w5dxp

364. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 05:23:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <3xHwf.15613$oW.8393@newssvr11.news.prodigy.com>
Source record: 65525

nm5k@wt.net wrote:

> W5DXP wrote:
>>It has
>>low loss on the ladder-line matching section and an SWR
>>of less than 4:1 on the RG-213 coax. Where are the losses?
>
> At the ladderline/choke/coax junction I would suspect.

The only thing there that could be lossy would be the choke.
Why would a 1000 ohm choke be lossy?

>>It's a 3/8WL dipole on 75m, fed with low-loss ladder-line,
>>a parallel door knob cap, and an SWR of 1.3:1 on the RG-213
>>coax. Where are the losses?
>
> Does that version use the choke? Being the data is incomplete,
> hard to say at this point. But if there is loss, I can probably
> find it.. :/

Yes, but the impedance at that point is very close to 50 ohms
and the choke has about 1000 ohms of choking impedance.

>>Well, maybe. The one I bought in 1988 was well designed with
>>a w2du balun and RG-8x coax. It worked well with a tuner and
>>I made lots of improvements as I learned more about it.
>
> Hummm...Does that mean it's not really a G5RV anymore?

Call it a modified G5RV. It still looks like a G5RV.

> Whatever I use will never mix
> feedline types midroute to the antenna, I know that
> for sure. It's like a crapshoot ...

Not a crapshoot at all - just an application of a series section.
Do you object to 1/4WL of 75 ohm twinlead feeding a full-wave loop?
--
73, Cecil http://www.qsl.net/w5dxp

365. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 06:02:09 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <79c03$43c41226$471d24c1$2218@ALLTEL.NET>
Source record: 65434
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

I have both a 130 foot dipole and a G5RV, I can switch between the two and the reports are exactly the same on 75. With 100 watts on the G5RV I have worked well over 100 countries on SSB 75 meters. The day I received the Olivia for my mix w, worked Russia on it with 5 watts on 20 meters.

I use it nightly on my Navy Mars nets in the 3 Mhz area.

Like the 130 foot dipole I vary the feed line length to tune.

Both feedlines are fed from the rig to the ladderline with coax covered with ferrite beads at the junction end.

"Cecil Moore" <mycall@arrl.net> wrote in message
news:e6Dwf.18941$UF3.4834@newssvr25.news.prodigy.net...
> Reg Edwards wrote:
> > Anybody who boasts about his G5RV has never tried anything else.
>
> Reg, I replaced my 130 ft. dipole with a G5RV so I could
> experiment with it. Given my modifications, Nobody can tell
> it from the 130 ft. dipole so there's no reason to return
> to the 130 ft. dipole. My G5RV has an SWR of less than 2:1
> on all eight HF bands.
> --
> 73, Cecil http://www.qsl.net/w5dxp

366. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 13:24:12 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <07ednaJgzcDqKF7eRVn-uQ@comcast.com>
Source record: 65426

What??? Four 1/2 wavelength wires!! You gotta be kidding!!!

The Rhombic at AGA5HI in the early 70s was close to 6 wavelengths per side.

There are/were two different rhombic designs. [Roy may want to comment
on this.] A resonant rhombic without a termination resistor is
bidirectional. A non resonant rhombic, a traveling wave design that uses
a terminating resistor is unidirectional.

Gain increases as the length of each side increases. Directivity [gain]
is also dependent on the included angle which contributes to radiated
beam width.

AK

Reg Edwards wrote:
> "Cecil Moore" wrote
>
>>Reg Edwards wrote:
>>
>>>A terminated rhombic is only 50 percent (or even less) efficient.
>>
>>But it's 50% in the bad direction, not the good direction. :-)
>
> ==
>
> In the most simplistic of terms, a rhombic consists of four
> 1/2-wavelength wires plus a lossy resistor which gets hot.
>
> If the four 1/2-wavelength wires are rearranged to form a dipole, plus
> a reflector, plus two directors, we have only one good direction in
> which 100% of the power is radiated. Nothing gets hot.
>
> Common sense prevails. No need to refer to Eznec. Even a drunken
> old-wife would know which arrangement to choose, if only because it
> saves the cost and fitting of a high power, non-reactive resistor.
> ;o)
>
> But no doubt US Army Field Manuals still call upon rhombics.
> ----
> Reg.
>
>

367. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 13:40:19 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq0dg3ndm1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65427
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Cecil Moore" <mycall@arrl.net> wrote in message
news:y8Hwf.15610$oW.13838@newssvr11.news.prodigy.com...
> Reg Edwards wrote:
> > "Cecil Moore" wrote
> >> My G5RV has an SWR of less than 2:1
> >>on all eight HF bands.
> >
> > The SWR on your 380-ohm transmission line to the antenna is
umpteen
> > times greater than that!
>
> I'm not talking about SWR on the series section transformer,
> Reg, I'm talking about on the 50 feet of RG-213. And it's
> not "umpteen times", rather limited to about ten times.
>
> > Isn't it time you changed the name of your SWR meter?
>
> Nope, for a G5RV with the nominal 70 feet of 50 ohm coax,
> the SWR meter is indeed reading the SWR on the coax.
> Remember, I'm not using a tuner. The coax from the G5RV
> goes directly to the transceiver through the SWR meter.
> I actually use my SWR meter to display the SWR.
> --
> 73, Cecil http://www.qsl.net/w5dxp
==========

I see you are happy to change names when in a tight corner.

The name "Transmission line" has been conveniently changed to "Series
Section Transformer".

But it still has standing waves on it far higher than what you claim
for all bands. And don't standing waves increase loss on SST's just as
much as they do on transmission lines?

Louis is turning over in his grave - yet again.

But what the heck? A G5RV will work even if you havn't got one.

I once set up an 80 feet dipole without a series section transformer.
Unsurprisingly - it worked. ;o)

Reg.

368. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 15:25:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <PlQwf.49459$BZ5.9298@newssvr13.news.prodigy.com>
Source record: 65428

Amos Keag wrote:
> A resonant rhombic without a termination resistor is
> bidirectional.

Yes and, being open-ended, is a *standing-wave* antenna.
Contrary to what has been said here on r.r.a.a in the
past, Balanis says: "The current and voltage distributions
on open-ended antennas are similar to the standing wave
patterns on open-ended transmission lines. ... Standing
wave antennas, such as the dipole, can be analyzed as
traveling wave antennas with waves propagating in opposite
directions (forward and backward) and represented by
traveling wave currents If and Ib in Figure 10.1(a)."
--
73, Cecil http://www.qsl.net/w5dxp

369. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 15:48:01 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <RGQwf.49465$BZ5.33352@newssvr13.news.prodigy.com>
Source record: 65429
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Reg Edwards wrote:
> The name "Transmission line" has been conveniently changed to "Series
> Section Transformer".
>
> But it still has standing waves on it far higher than what you claim
> for all bands. And don't standing waves increase loss on SST's just as
> much as they do on transmission lines?

As you know, standing waves increase loss on SST's just as much
as they do on transmission lines *OF THE SAME LENGTH*. For instance,
on 3.8 MHz, that 300 ohm series section transformer on a G5RV has
an SWR of about 20:1 and a line loss of about 0.7 dB, about 12% of
one S-unit. That's a small price to pay for multi-band operation.
And using Wireman #554 (like I do) instead of 300 ohm twinlead will
cut those SST losses down to 0.37 dB, about 6% of an S-unit.

> I once set up an 80 feet dipole without a series section transformer.
> Unsurprisingly - it worked. ;o)

If you fed it with ladder-line, you fed it with a long series
section transformer. :-)
--
73, Cecil http://www.qsl.net/w5dxp

370. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 16:32:59 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <%kRwf.243281$qk4.55259@bgtnsc05-news.ops.worldnet.att.net>
Source record: 65430

Cecil Moore wrote:
>
> Yes and, being open-ended, is a *standing-wave* antenna.
> Contrary to what has been said here on r.r.a.a in the
> past, Balanis says: "The current and voltage distributions
> on open-ended antennas are similar to the standing wave
> patterns on open-ended transmission lines. ... Standing
> wave antennas, such as the dipole, can be analyzed as
> traveling wave antennas with waves propagating in opposite
> directions (forward and backward) and represented by
> traveling wave currents If and Ib in Figure 10.1(a)."

Why would that be of any advantage? Do you believe it is easier to solve for the exact radiated fields by partitioning the standing wave into two components?

The real challenge in antenna theory is determining the exact current distribution. Further subdividing or superposing the current is a trivial exercise in comparison, and such manipulation may or may not be useful.

In other words, what Balanis says may be true, but so what?

73,
Gene
W4SZ

371. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 16:50:03 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <fpn7s1p1konao22cibu0jj5bh4g6uk28fp@4ax.com>
Source record: 65431

On Tue, 10 Jan 2006 15:25:35 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Amos Keag wrote:
>> A resonant rhombic without a termination resistor is
>> bidirectional.

It may be bidirectional, but it still has directivity in the direction
away from the feed.

>
>Yes and, being open-ended, is a *standing-wave* antenna.
>Contrary to what has been said here on r.r.a.a in the
>past, Balanis says: "The current and voltage distributions
>on open-ended antennas are similar to the standing wave
>patterns on open-ended transmission lines. ... Standing
>wave antennas, such as the dipole, can be analyzed as
>traveling wave antennas with waves propagating in opposite
>directions (forward and backward) and represented by
>traveling wave currents If and Ib in Figure 10.1(a)."

If the unterminated rhombic is long enough to be considered a -real-
rhombic, it is both a standing wave and a traveling wave antenna.

If you want to think of it in transmission line terms, it's a very
lossy line. The 100% reflection at the open end is 100% of what's
left after the effects of resistive and radiated loss are factored in.

The rhombic as the positive attribute of simplicity but that is about
the only positive. It takes a huge amount of space (in wavelengths)
and it's really a crappy antenna from the standpoint of minor (and
some not so minor) lobes. The Laport version is much better, but much
more complicated.

372. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 16:58:11 UTC
From: Howard W3CQH <hgorden@adelphia.net>
Message-ID: <vPSdneQJEd8-el7enZ2dnUVZ_sGdnZ2d@adelphia.com>
Source record: 65432

Try a loop yagi=

"David" <webreply@orbitcoms.com> wrote in message
news:_RHsf.124838$V7.65294@news-server.bigpond.net.au...
> Hi,
>
> I am looking for recommendation for a design of antenna to operate
> in the band 915-928 MHz.
>
> The desired response is omni-directional with gain greater than or equal
> to a 1/2 wave dipole, something that does not require a ground plane
> and is reasonably straight forward to manufacture in-house.
>
> So far I am considering a 1/2 wave vertical dipole with feed through lower
> element, J-Pole and Collinear.
>
> Thanks in advance for any ideas or link to a web site that might have some
> homebrew versions I could replicate and try.
>
>
> --
>
> Kind Regards
>
> David Huisman

373. RE: Used little Steppir vertical price

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 19:08:13 UTC
From: "LiveToBe100.org" <livetobe100.org@gmail.com>
Message-ID: <1136920093.409763.227550@g49g2000cwa.googlegroups.com>
Source record: 65433

My son picked up a used little Steppir vertical for $300 on ebay. The
big Steppir verticals are very popular, but the little ones are not.
>From what he told me on the little verticals you have to use .25
wavelength radials and on the big verticals you only have to use .1
wavelength radials. Plus, with the big vertical you can work 40 meters
and the little one will only go up to 20 meters.

Walt
http://LiveToBe100.org

374. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 19:51:04 UTC
From: richardharrison@webtv.net
Message-ID: <5278-43C41028-632@storefull-3251.bay.webtv.net>
Source record: 65437

Howard, W3CQH wrote:
"Try a loop yagi."

Construction details are given for 1296 MHz Loop Yagis in my 19th edition of the ARRL Antenna book and easily scaled to 915 MHz.

Best regards, Richard Harrison, KB5WZI

375. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 19:57:54 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq13k2$jl9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65435
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Cecil Moore" wrote
> If you fed it with ladder-line, you fed it with a long series
> section transformer. :-)

==========

. . . . and your SWR meter is not an SWR meter - it is a transmitter
loading indicator. ;o)

Go on then - call me a copy cat!

Reg.

376. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 20:15:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <kBUwf.15891$oW.7090@newssvr11.news.prodigy.com>
Source record: 65436

Gene Fuller wrote:
> Cecil Moore wrote:
>> Yes and, being open-ended, is a *standing-wave* antenna.
>> Contrary to what has been said here on r.r.a.a in the
>> past, Balanis says: "The current and voltage distributions
>> on open-ended antennas are similar to the standing wave
>> patterns on open-ended transmission lines. ... Standing
>> wave antennas, such as the dipole, can be analyzed as
>> traveling wave antennas with waves propagating in opposite
>> directions (forward and backward) and represented by
>> traveling wave currents If and Ib in Figure 10.1(a)."
>
> In other words, what Balanis says may be true, but so what?

The "so what" is the additional knowledge to be gained by
not choosing to ignore the underlying physics. When the
forward EM wave hits the end of the dipole, what happens?
Essentially the same thing that happens when a forward EM
wave hits the end of an open-circuit transmission line.
The H-field (current) goes to zero and the E-field (voltage)
doubles, i.e. the forward wave existing at that point is
completely reflected.

That explains why the feedpoint impedance of a 1/2WL dipole is
50-75 ohms instead of the physical characteristic impedance
of ~1200 ohms. The feedpoint impedance of a 1/2WL dipole is
a virtual impedance caused by destructive interference
between the forward and reflected voltages, Vfp = |Vfor|-|Vref|,
and constructive interference between the forward and reflected
currents, Ifp = |Ifor|+|Iref|, and Zfp = Vfp/Ifp

It is interesting to note the consistency of the arguments
here on r.r.a.a. Someone says, "'A' is true". Someone else
says, "No, 'A' is gobbledygook". After 'A' is proven to
be true, the argument shifts to, "OK, so what? Those grapes
are probably sour anyway." :-)
--
73, Cecil http://www.qsl.net/w5dxp

377. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 20:23:02 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <GIUwf.243995$qk4.185779@bgtnsc05-news.ops.worldnet.att.net>
Source record: 65438

Cecil,

I don't understand the "sour grapes" reference. To the contrary, I
believe I have argued with you many times that there are multiple ways
to solve a problem.

Use standing waves or traveling waves as you choose for computational
convenience. The only thing that goes into the field-defining equations
is the current, not the waves.

Your original message implied that may be some special benefit to a
standing-wave antenna over a *non-standing-wave* antenna. Other than
all of the hand-waving, which seems to somehow be connected to your
intuitive thinking, there is no physical difference.

>> In other words, what Balanis says may be true, but so what?

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Cecil Moore wrote:
>>
>>> Yes and, being open-ended, is a *standing-wave* antenna.
>>> Contrary to what has been said here on r.r.a.a in the
>>> past, Balanis says: "The current and voltage distributions
>>> on open-ended antennas are similar to the standing wave
>>> patterns on open-ended transmission lines. ... Standing
>>> wave antennas, such as the dipole, can be analyzed as
>>> traveling wave antennas with waves propagating in opposite
>>> directions (forward and backward) and represented by
>>> traveling wave currents If and Ib in Figure 10.1(a)."
>>
>>
>> In other words, what Balanis says may be true, but so what?
>
>
> The "so what" is the additional knowledge to be gained by
> not choosing to ignore the underlying physics. When the
> forward EM wave hits the end of the dipole, what happens?
> Essentially the same thing that happens when a forward EM
> wave hits the end of an open-circuit transmission line.
> The H-field (current) goes to zero and the E-field (voltage)

> doubles, i.e. the forward wave existing at that point is
> completely reflected.
>
> That explains why the feedpoint impedance of a 1/2WL dipole is
> 50-75 ohms instead of the physical characteristic impedance
> of ~1200 ohms. The feedpoint impedance of a 1/2WL dipole is
> a virtual impedance caused by destructive interference
> between the forward and reflected voltages, Vfp = |Vfor|-|Vref|,
> and constructive interference between the forward and reflected
> currents, Ifp = |Ifor|+|Iref|, and Zfp = Vfp/Ifp
>
> It is interesting to note the consistency of the arguments
> here on r.r.a.a. Someone says, "'A' is true". Someone else
> says, "No, 'A' is gobbledygook". After 'A' is proven to
> be true, the argument shifts to, "OK, so what? Those grapes
> are probably sour anyway." :-)

378. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 20:59:42 UTC
From: Me <Me@shadow.orgs>
Message-ID: <Me-52AC04.12010110012006@netnews.worldnet.att.net>
Source record: 65439

In article <dpuoleifb1@engnntp2.cig.mot.com>,
"Steve Nosko" <suteuve.nosukowicuz@moutouroula.com> wrote:

> I don't understand being "on the same level" AND being "20 feet below".
>
> 73, Steve, K,9.D;C'I

Seems that you don't understand the Antenna Beamwidths in the Horozontal
and Vertical Planes, on Modern Marine Radar Systems.

Me

379. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:00:49 UTC
From: nm5k@wt.net
Message-ID: <1136926849.382842.50850@g14g2000cwa.googlegroups.com>
Source record: 65440

>Not a crapshoot at all - just an application of a series section.

I'm not really talking about yours though. I'm talking about
the "usual" G5RV that is fed with a tuner, etc, ad nausium.
Most people don't change sections when they change
bands. They just redial the tuner and go.
If you change very much with a G5RV, it's not a G5RV
anymore. IE: If you feed a 102 ft dipole with ladder
line, but no choke or coax, it's not a G5RV anymore.
It's a 102 ft dipole fed with ladder line.
A series transformer for a loop is not quite the same to
me as it's almost always a single band solution.
I won't be expecting that transformer to work for all bands.
Like I said, if the "G5RV" or others of it's ilk are appealing
to you, be my guest. But trying to talk me into using one,
or even accepting it as something I would actually use is
futile. :/
Tell me this...What is the advantage of using the choke,
coax, etc, vs just running straight ladder line the whole
way? If I had to tuner feed a 102 ft dipole for all bands, thats
the way I would do it. There would be no coax, or choke.
MK

380. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:14:40 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <pj78s19v8l3jhdkp987ntb3l2d1bb6jn73@4ax.com>
Source record: 65441

On Mon, 09 Jan 2006 15:50:20 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Ricke wrote:
>> If SETUP right , There the best HF I've ever used.
>
>Maybe the only one? :-) The G5RV, with tuner, is a pretty
>good 80m, 40m, 20m, and 12m antenna. If the series section
>is varied from 20 feet to 36 feet, it becomes a very good
>all-HF-band antenna. With the addition of a parallel 1000pf
>capacitor with the series section at 22 feet, on 75m my "G5RV"
>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.

Is this the antenna described at http://www.qsl.net/w5dxp/G5RV.HTM ?

In that article, on 75m you model a feedpoint impedance of 36-j324,
28' of 300 ohm ladder line, for a Z of 15+j4 (seems to indicate 46.7
deg length of 300 ohm line with 0.007dB loss (optimistic)).

At that point, were 50 ohm coax connected directly, the VSWR at the
load end of the 50 ohm coax would be 3, however you shunt the 17+j4
with 1000pF to give a new Z of 12.5-j8 that results in a VSWR at the
load end of the 50 ohm coax of around 4.1, driving a little more loss
into the coax section.

Presumably when you say that the capacitor improves the VSWR on 75m,
you mean the VSWR on the coax. Did I miss something, how does the
capacitor improve the VSWR on 75m?

Owen

PS I couldn't make the numbers work for 22' as in your quote, where I
got a VSWR at the load end of the coax of 27. I couldn't see where the
VSWR of 1.3 comes from?
--

381. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:15:08 UTC
From: nm5k@wt.net
Message-ID: <1136927708.070996.198280@f14g2000cwb.googlegroups.com>
Source record: 65442
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

>I have both a 130 foot dipole and a G5RV, I can switch between the two and
the reports are exactly the same on 75. With 100 watts on the G5RV I
have
worked well over 100 countries on SSB 75 meters. The day I received the
>Olivia for my mix w, worked Russia on it with 5 watts on 20 meters.

>I use it nightly on my Navy Mars nets in the 3 Mhz area.

>Like the 130 foot dipole I vary the feed line length to tune.

Hummmmm.......... :/

Both feedlines are fed from the rig to the ladderline with coax covered
with
ferrite beads at the junction end.

Try the 130 ft dipole fed with straight coax and see if you don't
see a difference then. Sure, it won't be huge, but it should be
there, and be quite noticable too on a receiver. I think this why you
are seeing no difference. .
You are "clutter" feeding both antennas. :/ Seriously.
Coax to ladderline...yuk...:/
But saying that, it's obvious it works well nuff I suppose..
I just like to stir it. It's been too slow around here lately.
But...I am serious about what I say.. If you want the vurry
best 80m dipole, feed it with nuttin but coax.
MK

382. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:41:46 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <a5a8s1dt9gpk9nts8khpoaaai0kgsuj6m6@4ax.com>
Source record: 65443

On Tue, 10 Jan 2006 21:14:40 GMT, Owen Duffy <owen@no.where> wrote:

>On Mon, 09 Jan 2006 15:50:20 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>Ricke wrote:
>>> If SETUP right , There the best HF I've ever used.
>>
>>Maybe the only one? :-) The G5RV, with tuner, is a pretty
>>good 80m, 40m, 20m, and 12m antenna. If the series section
>>is varied from 20 feet to 36 feet, it becomes a very good
>>all-HF-band antenna. With the addition of a parallel 1000pf
>>capacitor with the series section at 22 feet, on 75m my "G5RV"
>>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.
>
>Is this the antenna described at http://www.qsl.net/w5dxp/G5RV.HTM ?

I have made a mistake during my analysis, let me try again:

In that article, on 75m you model a feedpoint impedance of 36-j324,
28' of 300 ohm ladder line, for a Z of 15+j4 (seems to indicate 48.2
deg length of 300 ohm line with 0.007dB loss (optimistic)).

At that point, were 50 ohm coax connected directly, the VSWR at the
load end of the 50 ohm coax would be 3, however you shunt the 17+j4
with 1000pF to give a new Z of 17.3-j3.0 that results in a VSWR at the
load end of the 50 ohm coax of around 2.9, almost identical to the
case without the capacitor.

Presumably when you say that the capacitor improves the VSWR on 75m,
you mean the VSWR on the coax. Did I miss something, how does the
capacitor improve the VSWR on 75m?

Owen

PS I couldn't make the numbers work for 22' as in your quote, where I
got a VSWR at the load end of the coax of 27. I couldn't see where the
VSWR of 1.3 comes from?
--
--

383. RF Connectors, Adapters & Cable Assemblies

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:52:37 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <Z%Vwf.11144$sA3.10563@fed1read02>
Source record: 65444
Cross-posted to: rec.radio.amateur.antenna,rec.radio.cb,rec.radio.swap

For your free copy of our new catalog,

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or see www.aaarfproducts.com

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No minimum order.

No handling charges.

384. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:55:20 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <D0Wwf.30677$qw4.6169@bignews5.bellsouth.net>
Source record: 65446

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dpkmb6$87k$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com...
>
> "Roy Lewallen" wrote -
>> Reg Edwards wrote:
>> >
>> > 9dB is only one and a half S-units. (Ignoring Roy's ancient
> S-meter).
>> >
>> > The Outbacker may still be well worth the money!
>> >
>> > But that's just the Capitalist System which places Religion above
>> > scientific facts. Sorry for becoming a little off topic.
>> >
>> > A drop of South African Western Cape helps to keep things in
>> > proportion.
>>
>> 9 dB is also the gain of a good long-boom 4 element Yagi over a
> dipole.
>> You'd have to drink more than a spot of the wine to not see the
> difference.
>>
> ==
>
> Roy, you have the unfortunate habit of changing the subject in the
> middle of a discussion in the forlorn hope of it not being noticed.
>
> What have 4-element yagis to do with Outbackers?
>
> By switching to Chinese "Great Wall" white wine I can make my S-meter
> read whatever I fancy. You ought to try some!
>
> But perhaps you are a teetotaller who has never had the pleasure. If
> in fact you are indeed a teetotaller, then, I must admit, you deserve
> congratulations for having evaded the 'demon' drink.
>
> It's all in the genes, anyway! I acquired it from my Grandmother.
> ----
> Reg.

How about someone who simply doesn't LIKE alcoholic drinks? :) I've had a
sip of a beer twice in 15 years. Like some that don't like broccoli, I don't
like liquor. It all tastes horrible to me and I'd rather have a unspiked
Coke! It all tastes the same to me----Nasty! YUCK! BARF! The Coke tastes

sweet and, when I drive home afterwards, I know where home IS and can get there unassisted! The only "bad" effect from a Coca Cola is, it makes me have to pee! :) After 57 years, I think I can do without for a few more. Now the broccoli? I love broccoli casserole!! ;)

73

J

385. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:55:22 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <9AqdnWDnPbDRsFneSa8jmw@karoo.co.uk>
Source record: 65447

Thierry wrote:

> Hi,
>
> I received this message from a colleague but I cannot answer him. I d
> not know these systems.
> Could you help me ?
>
> My company has installed a Radar Tower for Port survaillence. The tower
> is about 50 meter height on top of the of a 3 stories building roof and
> my office building just below the tower on the same level, 20 meter away
> from the tower. At the same time, the surrounding is my working area (
> Jetty Terminal for ships loading and unloading activities). I can say
> that I'll be around that area 12 hours a day for another 20 years.
>
> My question:
>
> Is it safe to work in that area????
>
> Thanks in advance
> Thierry
> http://www.astrosurf.org/lombry
>
>

So, what about Radar then...

First, There are two "kind" of RF radiation, non-ionizing and ionizing and effects emanating from very high voltage nearby different materials.

Normally, non-ionising is to be more or less compared to sun light.
An overdose of non-ionising radiation gives the same effects than sun stroke gives you, you heat up your body and the same symptoms occur if overheated.

As long as you are not overheating, there should be no harmful effects on you. The problem are always to determine a narrow angle beam, radiating towards sensitive parts of the body, like brain and eyes. The long term effects of a heated brain are probably still debated. However, it's probably not good for you. A narrow angle beam does not give the same full body heating that "switches" your body reaction as it's only a part of you that gets overheated, not the whole body!
If you are stupid enough to look into a wavegiude with full power on, be my guest!

Now then to the nasty part, the ionising radiation. This radiation creates residual effects even after the emitted radiation is switched off.

Typically radiation like Gamma radiation etc. This kind of radiation could also create secondare types of radiation from materials in the environment.

Treat the ionising radiation like plague or cholera, avoid avoid avoid.

Now, radar radiation is only non-ionising RF radiation, let be with high intermittent power and sometimes with stupidly high power.
Looking into an active waveguide will probably burn off your eye nerve or something very bad for you.

If you are standing near a RF radiating radar station, the average energy is what heats you up and the peaks are so short that even if they are Mega Watts, the average energy transfer to your body is low.

Going up in frequency more or less moves the RF towards light, still with the same effects.

OK, so it's not that bad is it? No? Wrong! Some frequencies are really bad for us because different parts of our bodies absorbs different amount of energy on different frequencies.

Let's take a party example... Many key fobs, alarm buttons for car locks etc, operates on 418MHz. It happens to be approximately where a normal head are resonating... Try walking just about out of range for your alarm/lock button for your car, point the key fob against your head and press the unlock key, voila, in most cases, you increase the range of the key fob.

So what? Just be aware and take a look in the health and safet chapter of the ARRL handbook. It's all there and also how much more dangerous it is with different frequencies.

The safest place are almost always under an antenna so don't fret over the mobile phone mast on the roof of the school! I would be more concerned if it was on a neighbouring house...

Cheers

Dan / M0DFI

386. Re: friends,please help me!!!!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 21:57:04 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <f2Wwf.30679$qw4.12258@bignews5.bellsouth.net>
Source record: 65448

<pcrkishan@gmail.com> wrote in message
news:1136481553.458674.149950@g14g2000cwa.googlegroups.com...
> Hi Friends,
>
> I have two dish antennas at the roof of my apartment.They are lying
> abandoned
> for many years.I want to make use of them.Can i receive any signals
> through them ? & If possible how to connect my computer to the dish
> receiver & monitor those signals?I dont have any idea about how to get
> started.Can any one give me a nice suggestion on how to utilize them ?&
> whether any interesting activity can be carried out ? I require a step
> by step complete instruction to carry out all the required
> activities.Please guide me !!!

Simple! Call your Dish Network dealer and he will help you all you need! :)

J
>

387. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 22:06:31 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <HdWwf.213149$V7.94680@news-server.bigpond.net.au>
Source record: 65449

Howard,

How do you get an onmi-directional pattern from this antenna ?

The other issue is that at 921MHz, the unit is almost 1m long (too big
to mount in our indoor applications)

Howard W3CQH wrote:
> Try a loop yagi=
>
> "David" <webreply@orbitcoms.com> wrote in message
> news:_RHsf.124838$V7.65294@news-server.bigpond.net.au...
>
>>Hi,
>>
>>I am looking for recommendation for a design of antenna to operate
>>in the band 915-928 MHz.
>>
>>The desired response is omni-directional with gain greater than or equal
>>to a 1/2 wave dipole, something that does not require a ground plane
>>and is reasonably straight forward to manufacture in-house.
>>
>>So far I am considering a 1/2 wave vertical dipole with feed through lower
>>element, J-Pole and Collinear.
>>
>>Thanks in advance for any ideas or link to a web site that might have some
>>homebrew versions I could replicate and try.
>>
>>
>>--
>>
>>Kind Regards
>>
>>David Huisman
>
>
>

--

Kind Regards

David Huisman
General Manager

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388. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 23:10:37 UTC
From: Pig Bladder <pigbladder@neodruid.net>
Message-ID: <pan.2006.01.10.23.10.54.98005@neodruid.net>
Source record: 65450
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

On Sat, 07 Jan 2006 23:51:47 +0000, Dave wrote:

> rf 'ground' is a real misunderstood thing. and things like this point out
> just how poorly understood it is.
[snip]

Broken shift key, huh?
--
Flap!
The Pig Bladder from Uranus, still waiting for that
hot babe to ask what my favorite planet is. ;-j

389. 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 23:16:14 UTC
From: wildboy <ik7ytt@gmail.com>
Message-ID: <1136934974.430378.213490@g14g2000cwa.googlegroups.com>
Source record: 65451

I want build a 8jk antenna, but i don't find a good project on
internet.
Can anyone help me?

390. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 23:42:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sDXwf.5062$fb4.2873@newssvr14.news.prodigy.com>
Source record: 65452

Gene Fuller wrote:
> I don't understand the "sour grapes" reference. To the contrary, I
> believe I have argued with you many times that there are multiple ways
> to solve a problem.

Actually, you have gone from saying I was wrong to saying that I am
right but it doesn't matter. I guess that's an improvement. :-)

> Your original message implied that may be some special benefit to a
> *standing-wave* antenna over a *non-standing-wave* antenna.

Sorry, I never said anything about a standing-wave antenna having some
special benefit over a traveling-wave antenna. It was a problem with
the inferrence function, not with the implication function. :-)
--
73, Cecil http://www.qsl.net/w5dxp

391. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 23:50:28 UTC
From: jgboyles@aol.com
Message-ID: <1136937028.162711.187430@o13g2000cwo.googlegroups.com>
Source record: 65453

wildboy wrote:
> I want build a 8jk antenna, but i don't find a good project on
> internet.
> Can anyone help me?
The ARRL Antenna Book has details in CH. 8 on multi element driven arrays. I don't know if there is a project available on the internet. I have never built a W8JK array, although they should not be that difficult.
Why do you want to build an 8jk, and for what band? Does it fit your particular application, or do you just want to experiment? Just curious.
Gary N4AST

392. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-10 23:50:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uLXwf.5068$fb4.4796@newssvr14.news.prodigy.com>
Source record: 65454

nm5k@wt.net wrote:
> If you change very much with a G5RV, it's not a G5RV
> anymore. IE: If you feed a 102 ft dipole with ladder
> line, but no choke or coax, it's not a G5RV anymore.

But that's exactly what G5RV recommended as one form of
his G5RV antenna.

> Tell me this...What is the advantage of using the choke,
> coax, etc, vs just running straight ladder line the whole
> way?

The advantage is a pretty good match on 80m, 40m, 20m and
12m that's not guaranteed with straight ladder-line. Some
lengths of ladder-line present additional problems. For
instance, if one happens upon a current maximum point
located at a 4:1 balun, one can take 16 ohms down to 4
ohms. That's going in the wrong direction.
--
73, Cecil http://www.qsl.net/w5dxp

393. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:11:38 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9747A4BB6737Bdoldridgsprintca@64.59.135.159>
Source record: 65455
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in news:dpuo55isc1
@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com:

>> Single wire feed. I was a student (living off of my wife) and used
> what I
>> could get my hands on.
> ======================================
>
> A true radio amateur!
>
> Just get a random, bent wire into the air. A single-wire feed helps a
> lot. With a modest ground and a simple tuner you have an efficient,
> multi-band, go-anywhere antenna system you can be proud of.
>
> Anybody who boasts about his G5RV has never tried anything else.

Well, I'll put the system I started to design last night up against most
other 80m antennas. But it won't be cheap to build. Needs 8 165-foot
towers, and a bunch of phase delay networks and some power dividers. :-P

But the gain over ordinary ground works to between 9.5 and 10.5 dbi
depending on the direction favoured by the phasing networks.

--
Dave Oldridge+
ICQ 1800667

394. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:13:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <u4Ywf.5078$fb4.1558@newssvr14.news.prodigy.com>
Source record: 65457

Owen Duffy wrote:
> Is this the antenna described at http://www.qsl.net/w5dxp/G5RV.HTM ?

Nope, that's just an off-the-shelf vanilla G5RV.

> In that article, ...

Forget that article which only shows why the *standard* G5RV is
a fairly well matched antenna on 80m and 40m.

> Presumably when you say that the capacitor improves the VSWR on 75m,
> you mean the VSWR on the coax. Did I miss something, how does the
> capacitor improve the VSWR on 75m?

I'm sure you know this already. Given an SWR circle on a Smith Chart
that crosses the horizontal resistive line at less than 50 ohms and
given the 1/50 conductance circle, those two circles will cross at
two points. Where they cross in the capacitive reactance region is
the point on the transmission line where a parallel capacitance will
bring the impedance at that point to 50+j0 ohms. This is a common
matching technique for 75m mobile antennas. The same thing can be
done with a coil installed where the circles cross in the inductive
reactance region. This technique is described in the ARRL Antenna
Book.

What I have done on my G5RV is find the point where the SWR circle
intersects the 1/50 conductance circle in the capacitive reactance
region on 3.8 MHz and install a 1000 pf parallel cap there. My series
section line is 22.5 ft. of Wireman #554 at that point. The 50 ohm
SWR is reduced from about 5:1 to 1.3:1 on 3.8 MHz.

Given an SWR circle crossing the 1/50 conductance circle, there's a
point where a cap will result in 50 ohms. A little farther, a cap
will result in 300 ohms. A little farther, a cap will result in
450 ohms, etc. These are the points just past the current maximum
point where one can hang a capacitive stub to achieve a purely
resistive impedance.
--
73, Cecil http://www.qsl.net/w5dxp

395. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:13:18 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9747A50389FCFdoldridgsprintca@64.59.135.159>
Source record: 65456
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Anthony Fremont" <spam@anywhere.com> wrote in news:FZBwf.39022$9e.30720
@tornado.texas.rr.com:

>
> "Reg Edwards" wrote
>> > Single wire feed. I was a student (living off of my wife) and used
>> what I
>> > could get my hands on.
>> ======================================
>>
>> A true radio amateur!
>>
>> Just get a random, bent wire into the air. A single-wire feed helps a
>> lot. With a modest ground and a simple tuner you have an efficient,
>> multi-band, go-anywhere antenna system you can be proud of.
>>
>> Anybody who boasts about his G5RV has never tried anything else.
>
> Right.....you should hear the bands open up when you launch a kite
> antenna. There's nothing like a few hundred feet of random long wire
up
> in the air. ;-)
> WARNING: No one should ever do such a thing for what should be very
> obvious safety reasons.
>
> I'm a big fan of cubical quads, but you need allot of room for them.

I swear OH8OS used to MAKE his own band openings or 15 back in 65 when I
used to work him from VE8ML. He had a huge quad, 15 elements, I think,
pointed right in my direction.

--
Dave Oldridge+
ICQ 1800667

396. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:18:24 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9747A5E169F7doldridgsprintca@64.59.135.159>
Source record: 65458
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Fred W4JLE" <w4jle@w4jle.com> wrote in
news:79c03$43c41226$471d24c1$2218@ALLTEL.NET:

> I have both a 130 foot dipole and a G5RV, I can switch between the two
> and the reports are exactly the same on 75. With 100 watts on the G5RV
> I have worked well over 100 countries on SSB 75 meters. The day I
> received the Olivia for my mix w, worked Russia on it with 5 watts on
> 20 meters.
>
> I use it nightly on my Navy Mars nets in the 3 Mhz area.
>
> Like the 130 foot dipole I vary the feed line length to tune.
>
> Both feedlines are fed from the rig to the ladderline with coax
> covered with ferrite beads at the junction end.
>
>
>
> "Cecil Moore" <mycall@arrl.net> wrote in message
> news:e6Dwf.18941$UF3.4834@newssvr25.news.prodigy.net...
>> Reg Edwards wrote:
>> > Anybody who boasts about his G5RV has never tried anything else.
>>
>> Reg, I replaced my 130 ft. dipole with a G5RV so I could
>> experiment with it. Given my modifications, Nobody can tell
>> it from the 130 ft. dipole so there's no reason to return
>> to the 130 ft. dipole. My G5RV has an SWR of less than 2:1
>> on all eight HF bands.

There's nothing wrong with a G5RV if you couple power to its radiating
element efficiently. I usually just don't bother with the coax part of
the feed system and prefer to just run 300 ohm (or better yet 450 ohm)
line right to the shack and feed it through a tuner.

--
Dave Oldridge+
ICQ 1800667

397. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:23:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ZdYwf.5079$fb4.1202@newssvr14.news.prodigy.com>
Source record: 65459
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

nm5k@wt.net wrote:
> If you want the vurry
> best 80m dipole, feed it with nuttin but coax.

Well, as a data point, Owen's transmission line loss calculator says there's 0.362 dB loss in 100 ft. of RG-213 feeding a 50 ohm antenna on 75m. The loss using 100 ft. of open-wire feedline feeding a 50 ohm antenna on 75m is 0.169 dB, less than half the loss in the coax. Even the Wireman #554 "450" ohm line is better than the coax at 0.269 dB. Where are the losses in a Ladder-Line fed system?
--
73, Cecil http://www.qsl.net/w5dxp

398. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:29:02 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9747A7AF24B2Adoldridgsprintca@64.59.135.159>
Source record: 65460

"wildboy" <ik7ytt@gmail.com> wrote in news:1136934974.430378.213490
@g14g2000cwa.googlegroups.com:

> I want build a 8jk antenna, but i don't find a good project on
> internet.
> Can anyone help me?

http://www.hard-core-dx.com/nordicdx/antenna/wire/w8jk.html

--
Dave Oldridge+
ICQ 1800667
VA7CZ

399. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:33:26 UTC
From: Anthony Fremont <spam@anywhere.com>
Message-ID: <qnYwf.271$1J1.207@tornado.texas.rr.com>
Source record: 65461
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

"Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message

> I swear OH8OS used to MAKE his own band openings or 15 back in 65 when
I
> used to work him from VE8ML. He had a huge quad, 15 elements, I
think,
> pointed right in my direction.

You just about can. Even with just two elements on 10, I worked several
contacts from Houston that couldn't hear anyone else in the US. I
really loved that antenna.

400. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:36:25 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dqYwf.5082$fb4.1106@newssvr14.news.prodigy.com>
Source record: 65462

Owen Duffy wrote:

> On Tue, 10 Jan 2006 21:14:40 GMT, Owen Duffy <owen@no.where> wrote:
>
>
>>On Mon, 09 Jan 2006 15:50:20 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>
>>
>>>Ricke wrote:
>>>
>>>>If SETUP right , There the best HF I've ever used.
>>>
>>>Maybe the only one? :-) The G5RV, with tuner, is a pretty
>>>good 80m, 40m, 20m, and 12m antenna. If the series section
>>>is varied from 20 feet to 36 feet, it becomes a very good
>>>all-HF-band antenna. With the addition of a parallel 1000pf
>>>capacitor with the series section at 22 feet, on 75m my "G5RV"
>>>has SWR of 1.3:1 and works as well as a 75m 1/2WL dipole.
>>
>>Is this the antenna described at http://www.qsl.net/w5dxp/G5RV.HTM ?
>
>
> I have made a mistake during my analysis, let me try again:

Now you tell me after I spent 15 minutes replying to it. :-)
The details are there so I won't repeat it here.

> In that article, on 75m you model a feedpoint impedance of 36-j324,
> 28' of 300 ohm ladder line, for a Z of 15+j4 (seems to indicate 48.2
> deg length of 300 ohm line with 0.007dB loss (optimistic)).
>
> At that point, were 50 ohm coax connected directly, the VSWR at the
> load end of the 50 ohm coax would be 3, however you shunt the 17+j4
> with 1000pF to give a new Z of 17.3-j3.0 that results in a VSWR at the
> load end of the 50 ohm coax of around 2.9, almost identical to the
> case without the capacitor.
>
> Presumably when you say that the capacitor improves the VSWR on 75m,
> you mean the VSWR on the coax. Did I miss something, how does the
> capacitor improve the VSWR on 75m?

What you missed is that the frequency must be changed to obtain the
benefit. The capacitor is *not* installed at the 17+j4 point. It is
installed at the 1/50 + j1/X admittance point. You can either increase
the length of the feedline past the 17+j4 point to the 1/50 + j1/X

admittance point or increase the frequency thus electrically lengthening the feedline to the 1/50 + j1/X admittance point. You cannot keep both of those values constant as you tried to do above.

You already know what I am trying to say. I must not be saying it very well. When a parallel cap is used on a 75m screwdriver antenna to achieve 50 ohms, the screwdriver is tuned to 1/50 + j1/X, i.e. slightly inductive. When a parallel coil is used, the screwdriver is tuned to 1/50 - j1/X, i.e. slightly capacitive.
--
73, Cecil http://www.qsl.net/w5dxp

401. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:38:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1sYwf.5083$fb4.758@newssvr14.news.prodigy.com>
Source record: 65463

Jerry wrote:
> How about someone who simply doesn't LIKE alcoholic drinks? :)

That someone has never tasted Bailey's. :-)
--
73, Cecil http://www.qsl.net/w5dxp

402. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 00:53:11 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <24b83$43c42d12$471d24c1$27562@ALLTEL.NET>
Source record: 65445
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

Tell me how to coax feed a dipole that works from 3.3 to 4.1 MHz and you have my attention.

<nm5k@wt.net> wrote in message news:1136927708.070996.198280@f14g2000cwb.googlegroups.com...
.
> But...I am serious about what I say.. If you want the vurry
> best 80m dipole, feed it with nuttin but coax.
> MK
>

403. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 01:17:03 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <5tj8s1tvhfro9mn1kfahsueeg8mmdo0the@4ax.com>
Source record: 65464

On Wed, 11 Jan 2006 00:13:14 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Owen Duffy wrote:
>> Is this the antenna described at http://www.qsl.net/w5dxp/G5RV.HTM ?
>
>Nope, that's just an off-the-shelf vanilla G5RV.
>
>> In that article, ...
>
>Forget that article which only shows why the *standard* G5RV is
>a fairly well matched antenna on 80m and 40m.

But... in that article which recommends 28' of 300 ohm ladder line you say "To improve the 75m SWR, try installing a 1000pF capacitor (mica or doorknob) in parallel across the ladder line at the ladder line to coax junction. Remove the capacitor for all other bands."

IMHO, just considering in isolation what is shown on that page there is something inconsistent about the Smith chart, the impedances, lengths, and assertions about the SWR improvement.

...

>What I have done on my G5RV is find the point where the SWR circle
>intersects the 1/50 conductance circle in the capacitive reactance
>region on 3.8 MHz and install a 1000 pf parallel cap there. My series
>section line is 22.5 ft. of Wireman #554 at that point. The 50 ohm
>SWR is reduced from about 5:1 to 1.3:1 on 3.8 MHz.

This implies you are trying to "tune out" the shunt capacitive reactance at a point on the line where the shunt resistive component is 50... but you need the opposite sign of reactance reactance (so that the susceptances subtract), you need an inductive reactance in that case.

If "your G5RV" has a feedpoint impedance of 36-j324 (that seems reasonable), your 22.5 ft. of Wireman #554 will transform that to 21.53-j53.33, and the VSWR in 50 ohm line connected at that point would be 5.3.

A shunt capacitance CANNOT improve the 50 ohm VSWR at that point

The effect of the shunt 1000pF capacitance is to change the impedance at the junction to around 3.6-j25, which would cause a VSWR of around 17 in the 50 ohm line.

However:

If the ladder line was around 31' in length, then the Z at that point would be around 21+j25 (equivalent to 50 ohms R in parallel with +43 ohms X), and a shunt 1000pF (~ -42 ohms X) capacitor would give nearly perfect VSWR on the 50 ohm line.

In summary, in a general sense, if you want to use a shunt capacitor as you propose, you need to find length of line such that the admittance at that point is 1/50-jB (negative susceptance is inductive), and the correct shunt capacitor has a reactance of 1/B.

Flawed explanation aside, the only way that 22.5' works is if your feedpoint Z is quite different to 36-j324.

Owen
--

404. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 01:34:30 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <1rn8s11ue9botohfvnue2csg670tbqvr1q@4ax.com>
Source record: 65465

On Wed, 11 Jan 2006 00:36:25 GMT, Cecil Moore <mycall@arrl.net> wrote:

>You already know what I am trying to say. I must not be saying it
>very well. When a parallel cap is used on a 75m screwdriver antenna
>to achieve 50 ohms, the screwdriver is tuned to 1/50 + j1/X, i.e.
>slightly inductive. When a parallel coil is used, the screwdriver
>is tuned to 1/50 - j1/X, i.e. slightly capacitive.

Negative susceptances are inductive. An inductive reactance of j5 is a
susceptance of 1/j5 or -j1/5.

I agree with your words, the sign of the admittances is wrong.

Owen
--

405. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 01:38:41 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1136943521.247512.281220@z14g2000cwz.googlegroups.com>
Source record: 65466

i want build this antenna because seams to be the best choise for a multiband array with gain and no loss(less than other) for field day use.

If i buld it for 20mt it should work also on 15-10mt without traps.And in this way i can use fisshing pole to build it.

http://www.hard-core-dx.com/nordicdx/antenna/wire/w8jk.html
The project find on this page seams to be perfect, i do not understand the lenght are for half element or the full element

Thanks

406. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 01:49:09 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1136944149.119961.76530@g44g2000cwa.googlegroups.com>
Source record: 65467

sorry but the first question was mine. i don't know why was posted like
"wildboy" and not "ik7ytt".
so post made by "wildboy" and "ik7ytt" are made by same person.

407. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 01:57:07 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <d5p8s1t016lghjoc2urrdlns8l2qsd3pco@4ax.com>
Source record: 65468

On 10 Jan 2006 17:38:41 -0800, "ik7ytt" <ik7ytt@gmail.com> wrote:

>i want build this antenna because seams to be the best choise for a
>multiband array with gain and no loss(less than other) for field day
>use.
>
>If i buld it for 20mt it should work also on 15-10mt without traps.And
>in this way i can use fisshing pole to build it.
>
>
>http://www.hard-core-dx.com/nordicdx/antenna/wire/w8jk.html
>The project find on this page seams to be perfect, i do not understand
>the lenght are for half element or the full element

The diagram is not clear, is it.

The basic End-fire W8JK uses two half wavelength dipoles spaced an
eight of a wavelength. It has a half twist of the openwire line
between the dipoles, and it is fed at the centre of that line.

So, for 20m, each of the two dipoles will be about 10m long (end to
end), and they will be spaced about 2.5m apart.

(The diagram might lead you to think that each half of the dipole is
around 10m, but that not correct.)

Owen
--

408. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 02:32:30 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1136946750.794798.222720@g49g2000cwa.googlegroups.com>
Source record: 65469

Thanks for explain the diagram.
But now i have another doubt.
i have found on cebik home page an example of w8jk antenna.

You can seee at http://www.cebik.com/fdim/fdim9.pdf on page 6 and 7

in this project the full element is 44'(13.2m) but spacing is 22'
(6.6m)
So in this case the element is longher than 1/2wl (i'm also reading
that the optimum is that the full element is from 1wl to 1.25wl, so
from 20m to 25m) and spacing is between 1/8 wl to 1/2wl.

What is the best choise?
If element is to short i may have very low impedence

409. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 03:11:02 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <okt8s1hgf5h1qjp78oibig13hmo9vlmfri@4ax.com>
Source record: 65470

On 10 Jan 2006 18:32:30 -0800, "ik7ytt" <ik7ytt@gmail.com> wrote:

>Thanks for explain the diagram.
>But now i have another doubt.
>i have found on cebik home page an example of w8jk antenna.
>
>You can seee at http://www.cebik.com/fdim/fdim9.pdf on page 6 and 7
>
>in this project the full element is 44'(13.2m) but spacing is 22'
>(6.6m)

Doesn't he say it is cut for the lowest frequency, and that is 30m or
10MHz) in Table 3?

>So in this case the element is longher than 1/2wl (i'm also reading
>that the optimum is that the full element is from 1wl to 1.25wl, so
>from 20m to 25m) and spacing is between 1/8 wl to 1/2wl.
>
>What is the best choise?
>If element is to short i may have very low impedence
--

410. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 04:17:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <hF%wf.26448$UF3.21207@newssvr25.news.prodigy.net>
Source record: 65471

Owen Duffy wrote:
> But... in that article which recommends 28' of 300 ohm ladder line you
> say "To improve the 75m SWR, try installing a 1000pF capacitor (mica
> or doorknob) in parallel across the ladder line at the ladder line to
> coax junction. Remove the capacitor for all other bands."

Yes, but installing the cap will raise the resonant frequency.

>>What I have done on my G5RV is find the point where the SWR circle
>>intersects the 1/50 conductance circle in the capacitive reactance
^^^^^^^^^^
>>region on 3.8 MHz and install a 1000 pf parallel cap there. My series
>>section line is 22.5 ft. of Wireman #554 at that point. The 50 ohm
>>SWR is reduced from about 5:1 to 1.3:1 on 3.8 MHz.
>
> This implies you are trying to "tune out" the shunt capacitive
> reactance at a point on the line where the shunt resistive component
> is 50... but you need the opposite sign of reactance reactance (so
> that the susceptances subtract), you need an inductive reactance in
> that case.

Sorry, I misspoke. Where I said "capacitive reactance region"
above, it should have been "inductive reactance region".

> If "your G5RV" has a feedpoint impedance of 36-j324 (that seems
> reasonable), your 22.5 ft. of Wireman #554 will transform that to
> 21.53-j53.33, and the VSWR in 50 ohm line connected at that point
> would be 5.3.

"If" is the important word. My G5RV is obviously different from your
values. It's made out of insulated wire and I'm not sure it is exactly
102 feet long.

> Flawed explanation aside, the only way that 22.5' works is if your
> feedpoint Z is quite different to 36-j324.

And it is obvious that's the case. The "450" ohm ladder-line is 22.5 ft.
long and a 1000 pf capacitor resonates it on 3.8 MHz. Whatever the
feedpoint impedance needs to be to cause those conditions, that's
what it is.
--
73, Cecil http://www.qsl.net/w5dxp

411. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 04:25:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <rN%wf.26451$UF3.13152@newssvr25.news.prodigy.net>
Source record: 65472

Owen Duffy wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>You already know what I am trying to say. I must not be saying it
>>very well. When a parallel cap is used on a 75m screwdriver antenna
>>to achieve 50 ohms, the screwdriver is tuned to 1/50 + j1/X, i.e.
>> ^ should be -
>>slightly inductive. When a parallel coil is used, the screwdriver
>>is tuned to 1/50 - j1/X, i.e. slightly capacitive.
>> ^ should be +
> Negative susceptances are inductive. An inductive reactance of j5 is a
> susceptance of 1/j5 or -j1/5.
>
> I agree with your words, the sign of the admittances is wrong.

Yes, you are correct - sorry. But it now seems that you understand
what I was trying to say. If one takes an ordinary G5RV and
installs a parallel 1000pf capacitor at the coax/twinlead junction,
one will raise the resonant frequency and lower the SWR on the
coax for 75m operation. Very close to 50+j0 ohms can be achieved
on 75m through that simple act. When I lived in AZ, I switched that
cap in automatically using a relay and the frequency output signal
on my IC-745.
--
73, Cecil http://www.qsl.net/w5dxp

412. shorty forty (G5RV) little brother

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 04:34:14 UTC
From: george tibbetts <ta.lvr@worldnet.att.net>
Message-ID: <aV%wf.245108$qk4.169194@bgtnsc05-news.ops.worldnet.att.net>
Source record: 65473

Just read all msg on the g5rv question (wow) so let me introduce my problem - I bought a shorty forty 2ys ago at a hamfest, now Im ready to use it:

I have two poplar trees about 150ft fm house about sixty feet apart (perfect) and a garden shed underneath almost centered. The shorty forty is fed with (not measured) twin lead with a female coupler for a pl259 to get to house. I have about 180ft of catv (75 ohm) . Question: should I use a 6 to 1 balun attached to shed or should I just attach the catv to the ladder line and let it go. The vendor of the shorty forty assured me that I just had to attach normal 50 ohm coax to the connector and I was ready to go. of course I have a good tuner and used it many years with a van gorden g5rv and did great but the van gordon came with a balun at the end of the twin lead.

thanks - george

413. Re: shorty forty (G5RV) little brother

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 04:41:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <w%%wf.26454$UF3.8105@newssvr25.news.prodigy.net>
Source record: 65474

george tibbetts wrote:
> The shorty forty is
> fed with (not measured) twin lead with a female coupler for a pl259 to get
> to house. I have about 180ft of catv (75 ohm) . Question: should I use a 6
> to 1 balun ...

Forget the 6:1 balun - install a 1:1 current choke-balun
at the coax/twinlead junction. The W2DU type works well.
--
73, Cecil http://www.qsl.net/w5dxp

414. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 05:39:21 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <dS0xf.5187$4o7.3172@newssvr24.news.prodigy.net>
Source record: 65475

Doug,
Oops, tapered? Hmm, that's gonna be fun. Sounds like there would
have to be some type of 'stand-off' support and a constant rail
seperation for the hazer to ride on. I think I'd have to recommend
that you swap towers, or ideas.
'Doc
(At 'Big Mac' on the outside looking in!)

415. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 09:09:41 UTC
From: nm5k@wt.net
Message-ID: <1136970581.397887.291800@o13g2000cwo.googlegroups.com>
Source record: 65376
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

>Where are the losses in a Ladder-
>Line fed system? ....

The tuner that is usually used offsets the advantage
of the line itself. Sure, on paper you shouldn't really
be able to notice it. But I do when I test it. It's actually
measureable on an S meter when doing A/B comparisons.
Or at least it was for me when using a 989c tuner
and minimum inductance vs coax fed.
That tells me the tuner loss can often be a bit more
than it's cracked up to be. But I also found if you don't
use the minimum inductance when tuning the tuner,
you can lose quite a bit. I saw easy 20 % losses when
testing that one time. If I used the very least inductance,
I could get it down to an almost unmeasureable level.
If I get on 80m and want the very best efficiency I can get
feeding a dipole, I use coax.
Of course, the line is never more than 100 ft.
Usually more like 50 ft. I have a 50 ohm radio feeding a
low loss 50 ohm line, to a 50 ohm antenna feedpoint. You
have uncluttered perfection. :-) And in the real world
the most efficient that I've seen so far. If there was better,
I'd be using it. I could see using the ladder line on real
long distances. On the higher bands, it could be noticable.
But like I say, my run is about 50 ft. Considering efficiency
vs ease of use, wx resistance, ease of lightning protection,
coax is a no brainer for me. Of course, I ain't everyone.. :/
MK

416. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 09:18:38 UTC
From: nm5k@wt.net
Message-ID: <1136971118.371725.267240@g43g2000cwa.googlegroups.com>
Source record: 65377
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

>Tell me how to coax feed a dipole that works from 3.3 to 4.1 MHz and you
>have my attention.

Probably wouldn't be practical for you.. Just offhand, I can think
of a way, but you'd have to run at least two set of dipoles, and
maybe even three, tied together in parallel. You would stagger
tune them one low, one middle, one high, and the SWR
plot should look about like a \/\/\/ . I've never tried using
three dipoles, but I've done it with two and having a W SWR
plot. That is one way you could have that range and use
coax feed. But like I say, probably would be a PIA with
it needing at least one center support and six tie off
points.
MK

417. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 11:12:27 UTC
From: David J Windisch <davidjw@cinci.rr.com>
Message-ID: <vK5xf.20044$tR5.11888@tornado.ohiordc.rr.com>
Source record: 65378

Hi, all concerned:

The W8JK antenna can keep its same general broadside pattern when the lengths and spacing vary widely. So, you can build one to fit the space available, and you need to pay attention only to keeping the 4 lengths of element-wire close to the same length, and to crossing the phasing line over between element feedpoints**. It will work well over a 3-to-1 frequency range.

Element maximum-currents and voltages can be quite high, so use the largest practicable wire size, and good insulators.

Exact lengths or "resonance" do not seem to affect patterns. It is probably easier to use open-wire feedline. To make the antenna easier to tune, you can vary the feedline length between the transmitter and the antenna. Make your feedline "tune the antenna".

Modeling it with EZNEC shows that, at lower frequencies, it can have more radiation at lower angles than some other simple antennas at the same height above ground, and that shifting the feedpoint away from the center of the phasing line produces a uni-directional pattern.

I hope this helps.

73,
Dave, N3HE

** uncrossed will make it a double-lazy-H ;o)

"wildboy" <ik7ytt@gmail.com> wrote in message
news:1136934974.430378.213490@g14g2000cwa.googlegroups.com...
>I want build a 8jk antenna, but i don't find a good project on
> internet.
> Can anyone help me?
>

418. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 11:26:24 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <hmp9s1hara15bcas4gn07urhingla8eqbj@4ax.com>
Source record: 65379

On Wed, 11 Jan 2006 04:25:59 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Yes, you are correct - sorry. But it now seems that you understand
>what I was trying to say. If one takes an ordinary G5RV and
>installs a parallel 1000pf capacitor at the coax/twinlead junction,
>one will raise the resonant frequency and lower the SWR on the
>coax for 75m operation. Very close to 50+j0 ohms can be achieved
>on 75m through that simple act. When I lived in AZ, I switched that
>cap in automatically using a relay and the frequency output signal
>on my IC-745.

OK.

I played around a bit using the feedpoint impedances that I modelled for my "Feeding the G5RV" article. With 31' of 554, I needed about 2000pF to "tune" it for low 50 ohm VSWR at 3.6MHz.

I plotted the impedance presented to the coax for a range of frequencies from 3.5 to 3.8MHz, they are at http://www.vk1od.net/temp/G5RV-W5DXP.GIF . The Smith chart is normalised to 50 ohms. The solution seems fairly narrow band, the VSWR at 3.55 was 6, at 3.6 it was 1.3, and at 3.65 it was 5.

Of course, implementations will have slight differences in actual feedpoint impedances, and the outcome is very sensitive to slight differences in feedpoint Z. This "no-tuner" matching scheme will probably need significant customisation for each implementation.

Owen
--

419. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 12:26:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq2tid$84j$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65380

"Owen Duffy" wrote
> Of course, implementations will have slight differences in actual
> feedpoint impedances, and the outcome is very sensitive to slight
> differences in feedpoint Z. This "no-tuner" matching scheme will
> probably need significant customisation for each implementation.
>

==========
The World-famous G5RV.

What everyone appears to forget, is that Zo of the balanced twin-line section, on all bands except at 14.15 MHz, has a considerable affect on feedpoint impedances, swr, losses, etc.

When describing systems and performance nobody ever mentions what Zo of the feedline actually is. Omission of Zo reduces any following discussion to blythe, innocent nonsense.

R.L.Varney himself never gave a value to Zo. He didn't need to. He was concerned mainly with 14.15 MHz. It would be unfair to accuse him of not understanding the serious effects of Zo on other bands.

Reg.

420. Inverted-L Antenna And Close Proximity Coax ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 12:40:52 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <-_idnaUGo71SYVneRVn-rQ@comcast.com>
Source record: 65381

Hello:

Planning on putting up an outside Inverted-L antenna.
Listening only.

Looks like I will be stringing the vertical section along the
house side (an inch or two off of the wood on some kind of standoffs) to the top, where it
will begin the horiz. section to a nearby tree.

At the bottom of the vertical section, a foot or so off of the ground, I plan on burying a long length of copper
tubing for a ground, and probably an ICE lightning protector (to the same ground point).

A Balun and a start of the coax run to the receiver also starts at this bottom point.

Question:
The easiest way by far for me to get the coax to the receiver is to run it up from the Balun to my second floor where the receiver is.

If I run it upwards "right alongside" (or even tied to) the active vertical section of the antenna, will I have any problems ?
Remember, this would be coax, and I do receiving only.

Guess I'm worried about if the grounded shield of the coax presents some kind of ground element right next to the active element ?

Thanks,
Bob

421. Re: Recommendation for 915MHz omni antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 14:53:55 UTC
From: richardharrison@webtv.net
Message-ID: <27102-43C51C03-1@storefull-3253.bay.webtv.net>
Source record: 65382

David weote:
"How do you get an omni-directional pattern from this antenna?"

In a point to multipoint system, only the central station needs an omni antenna.

One orderly radio data acquisition system operates half-duplex. Only one station at a time transmits, and then only when called upon to do so.

A radio master interrogates remote stations within its reach, addressing them by name, rhen listens for their response. Only a single radio frequency is needed as remote stations don`t initiate transmissions until callef upon. In this master-slave relationship, there is no competition within the system for radio time.

The radio master can conveniently use an omnidirectional antenna as it communicates with slaves on various azimuths. The slaves only communicate with the master, even to communicate with each other. The slaves each have a directional antenna aimed at the master.

A directional antenna improves signal to noise ratio when transmitting and when receiving. Great gain and directionality, though desirable, may be necessary only when very low transmitter power must be used..

The long-boom directional loop array may have a gain of 20 dB. But, a 3-element Yagi can give a 5 dBd gain which may be plenty. This gain is almost equivalent to cutting the path length by half (6 dB).

The Yagi is close-spaced. With only 3 elements it is small and simple to build.

Normal narrow-band receivers are very sensitive so that very weak signals are sufficient if noise and interference are not severe. Higher gain antennas can be used as needed at remote sites on a case by case basis.

I built such a system decades ago and it is still in use.

Best regards, Richard Harrison, KB5WZI

422. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 16:10:22 UTC
From: Earl Needham <munged@3lefties.com>
Message-ID: <11sabfebrvtljda@corp.supernews.com>
Source record: 65383

"Cecil Moore" <mycall@arrl.net> wrote in message
news:1sYwf.5083$fb4.758@newssvr14.news.prodigy.com...
> Jerry wrote:
> > How about someone who simply doesn't LIKE alcoholic drinks? :)
>
> That someone has never tasted Bailey's. :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

Or Amaretto, or Drambuie, or Captain Morgans in a vanilla Pepsi, or...

<G>

Earl
--
Earl Needham
Clovis, New Mexico USA

423. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 16:15:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Haaxf.60975$7h7.27211@newssvr21.news.prodigy.com>
Source record: 65384
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

nm5k@wt.net wrote:
>>Where are the losses in a Ladder-
>>Line fed system? ....
>
> The tuner that is usually used offsets the advantage
> of the line itself.

Fred and I don't use a tuner.
--
73, Cecil http://www.qsl.net/w5dxp

424. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 16:45:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <RCaxf.49809$BZ5.1761@newssvr13.news.prodigy.com>
Source record: 65385

Owen Duffy wrote:
> I played around a bit using the feedpoint impedances that I modelled
> for my "Feeding the G5RV" article. With 31' of 554, I needed about
> 2000pF to "tune" it for low 50 ohm VSWR at 3.6MHz.

I'm just reporting what it took for my actual antenna under the
existing conditions at my QTH. The cap is actually 950 pf for
a minimum SWR of 1.3:1 on 3.9 MHz. The optimum value of the cap
would no doubt change at lower frequencies. With 22.5' of
Wireman #554 and a 950 pf cap, the 3:1 bandwidth is 145 kHz.
Adding sections of ladder-line lowers the resonant frequency.

Incidentally, this is a method for modifying the G5RV to work,
not only without a tuner, but with built-in tuners. When using
a built-in tuner, the antenna configuration doesn't have to
be changed as often. My IC756PRO will tune my present configuration
from 3.72-4.0 MHz. or 280 kHz.

> I plotted the impedance presented to the coax for a range of
> frequencies from 3.5 to 3.8MHz, they are at
> http://www.vk1od.net/temp/G5RV-W5DXP.GIF . The Smith chart is
> normalised to 50 ohms. The solution seems fairly narrow band, the VSWR
> at 3.55 was 6, at 3.6 it was 1.3, and at 3.65 it was 5.

Changing the length of the series section will shift the resonant
frequency. I can vary mine from 22.5 ft. to 38.5 ft for a near-
perfect SWR on all HF ham frequencies.

> Of course, implementations will have slight differences in actual
> feedpoint impedances, and the outcome is very sensitive to slight
> differences in feedpoint Z. This "no-tuner" matching scheme will
> probably need significant customisation for each implementation.

IMO, that is what ham radio is all about - warm up the old MFJ-259B
and get with the program. :-)
--
73, Cecil http://www.qsl.net/w5dxp

425. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 16:58:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <5Paxf.49818$BZ5.41181@newssvr13.news.prodigy.com>
Source record: 65386

Reg Edwards wrote:
> R.L.Varney himself never gave a value to Zo. He didn't need to. He was
> concerned mainly with 14.15 MHz. It would be unfair to accuse him of
> not understanding the serious effects of Zo on other bands.

However, in The ARRL Antenna Compendium #1, he did describe the
matching section well enough to calculate his Z0. It is #14
copper open-wire separated by 1.75 inches. I'll bet that's
an improvement over 300 ohm twinlead.
--
73, Cecil http://www.qsl.net/w5dxp

426. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 17:05:06 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <6vudnQDS5okhp1jenZ2dnUVZ_tadnZ2d@comcast.com>
Source record: 65387

Cecil Moore wrote:
> Jerry wrote:
>
>> How about someone who simply doesn't LIKE alcoholic drinks? :)
>
>
> That someone has never tasted Bailey's. :-)

They have missed one of the great joys of life. Sipping a Bailey's ... fond memories, satin taste, smooth, smoooooth, savory aroma. One glass ... one evening.

Ahh the old days. Today I can't afford Bailey's, or Chevas, or Budweiser, or soda; and, I can barely afford water.

Now, I have to write a check for this month's payment on my IC-756 Pro III <grin>.

427. Re: Inverted-L Antenna And Close Proximity Coax ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 17:33:50 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <tnfas1ll9tkktt9scdvtqsu6o2nnn4sdvd@4ax.com>
Source record: 65388

On Wed, 11 Jan 2006 07:40:52 -0500, "Robert11" <rgsros@notme.com>
wrote:
>The easiest way by far for me to get the coax to the receiver is to run it
>up from the Balun to my second floor where the receiver is.
>
>If I run it upwards "right alongside" (or even tied to) the active vertical
>section of the antenna, will I have any problems ?
>Remember, this would be coax, and I do receiving only.
>
>Guess I'm worried about if the grounded shield of the coax presents some
>kind of ground element right next to the active element ?

Hi Bob,

There is no inherent advantage in the inverted L except it being a top loaded vertical with some horizontal polarization properties (being unbalanced and all). You can save yourself some bewilderment by driving the bottom directly into ground and simply connecting your coax right at your second floor window with the coax shield connecting to the wire going down, and the coax center to the wire going up and to the tree. When lightning suggests itself, unconnect the coax from your receiver and drop the coax out the window.

You will never notice the proximity of the wood siding, but you may notice the proximity of house wiring that is in that wall. That wiring may be carrying house noise (like a computer's monitor's hash). However, that is best left for future investigation instead of paralyzing you now.

Also, build an antenna tuner, or buy a very cheap, no-meter 3-knob Ham tuner (less than $30). When you get into better antennas, you get into overdrive possibilities from nearby AM stations (and I bet there are a bajillion there in Mass). This is called "desensing" when those stations (even when you are not tuned to them) overpower your radio and drive the AGC so high, that you cannot hear weaker DX in the SW bands.

73's
Richard Clark, KB7QHC

428. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 19:41:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq3n0kcjs1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65389

> Reg Edwards wrote:
> > R.L.Varney himself never gave a value to Zo. He didn't need to. He
was
> > concerned mainly with 14.15 MHz. It would be unfair to accuse him
of
> > not understanding the serious effects of Zo on other bands.
>
> However, in The ARRL Antenna Compendium #1, he did describe the
> matching section well enough to calculate his Z0. It is #14
> copper open-wire separated by 1.75 inches. I'll bet that's
> an improvement over 300 ohm twinlead.
> --
> 73, Cecil
==========

Cec, the facts are, G5RV never mentioned Zo, either because he never attached any importance to it, or he didn't understand its relevance to other bands.

When considering other than 14.15 MHz perhaps he should have done. In any event, everybody else has followed suit.

Now we have the situation where dozens of people are busily seriously comparing all-band versions, one with another, and unknown to each other they are all using different value Zo transmission lines.

Many of those who purchased the antennas, or just copied G5RV's construction, havn't the foggiest idea what their particular Zo is. Yet, from an analysis point of view, which you are involved with, it is a crucial matter.

Your own Zo is a non-standard 375 ohms because you measured it. Yet you describe its performance to others as if everybody else's Zo is the same, whereas there is no hope of anybody else reproducing your particular results.

Its all a load of nonsense!

If anybody, at this very late stage in the art, should still wish to acquaint themselves with the less than mediocre performance of a G5RV, then download program DIPOLE3 from website below.

DIPOLE3 is a general purpose program which deals with a dipole of any length, at any frequency, plus balanced-twin feedline of any length and any Zo, plus balun, plus coax line of any length and Zo, plus L-tuner. So it happens to include a G5RV.

All the data for the original G5RV can be inserted in the program by depressing one key. Modifications to the system, such as changes in Zo, can easily be done and changes in performance immediately seen.

The final important output figure is overall loss between transmitter and radiated power. Individual losses in the antenna, in the two transmission lines, and in the tuner, are reported seperately. Even the tuner L and C settings and their circuit locations are predicted.

It is very easy to sweep over the HF frequency range to check when low swr happens to fall into amateur bands. (Unfortunately it doesn't do this very often.)

It is also easy to change the length of transmission line (as Cecil recommends and advertises) to try to obtain an swr of less than 2:1. But you can use any dipole length other than 102-feet to play with this useful aspect.

Accuracy is better than needed for the intended purposes and is generally as good as the accuracy of program input data. There is only one known trivial bug which occurs when dipole length is extremely short compared with wavelength. But clearly this is not of consequence.

What more could you want from a G5RV? There's nothing to do but erect it and then compare it with a dipole of any other length with an open wire feedline of thick wire, of no particular length, all the way to the shack. Plus a choke balun.

I'm still on Red, South African, Western Cape.

Download DIPOLE3. Its free to USA citizens.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

429. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 20:08:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AAdxf.609$dW3.555@newssvr21.news.prodigy.com>
Source record: 65390

Reg Edwards wrote:
> Cec, the facts are, G5RV never mentioned Zo, ...

Now Reg, you know that most statements using the word "never" are false. Here's a quote from G5RV, himself, from "The G5RV Multiband Antenna ... Up-to-Date" in The ARRL Antenna Compendium, Vol. 1.

"If you decide to use 300-ohm ribbon type feeder for this (series) section, it is strongly recommended that the type with 'windows' be used. ... Since the VF of standard 300-ohm ribbon feeder is 0.82, the mechanical length should be 28 ft. However, if 300-ohm ribbon with windows is used, its VF will be almost that of open-wire feeder, say 0.90, so its mechanical length should be 30.6 ft."
--
73, Cecil http://www.qsl.net/w5dxp

430. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 20:25:22 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq3pjisjf1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65391

Unless a self-respecting radio amateur wishes to set up a
point-to-point communications link, he would not consider a rhombic
which wastes half the transmitter power in a resistor.

How popular are rhombics, such as you describe, amongst amateurs?

There are, of course, some rich, perhaps contest participating
amateurs, with time any money to burn. I have no objection to their
existence. They are very welcome to the fraternity. They demonstrate
just what can be achieved.

Reg.

431. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 21:29:19 UTC
From: nm5k@wt.net
Message-ID: <1137014959.204349.98140@g47g2000cwa.googlegroups.com>
Source record: 65392
Cross-posted to: rec.radio.amateur.antenna,sci.electronics.basics

>Fred and I don't use a tuner.

Then you and Fred aren't running the same G5RV that
most people buy and throw up. And then feed with a tuner. :/
That's why I say I'm not really talking about your antenna.
I know you will modify it to make it more usable. This is a
given. You are Cecil. But all those 1000's of users who don't
have the time or the clue to modify? Like Lurch would say
on the Addams Family...Grugggggghhhhhhhhhhhhhh... :/
MK

432. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 21:37:15 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq3tqb$m01$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65393

Now Cec, your reference to my use of the English language, which you well understand, is an admission that you have lost the argument - whatever that may be.

And you, more than most people, should realise that it's fatal to use ARRL publications as Bibles.

The facts are, the Zo of the G5RV trannsmission line is indeterminate. Everybody has a different but unknown value.

And it follows that, so are all the interminable discussions on the subject which take place on this and other newsgroups. Hardly educational. They approach amusing nonsense!

But no doubt you will wish to further dig yourself in and have the last word. Go ahead! ;o) <smiley>

Reg.

433. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 21:37:32 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <00tas15me6bpn4801vrkd6cho9hkm2o0b6@4ax.com>
Source record: 65394

On 11 Jan 2006 01:09:41 -0800, nm5k@wt.net wrote:

>>Where are the losses in a Ladder-
>>Line fed system? ....
>
>The tuner that is usually used offsets the advantage
>of the line itself. Sure, on paper you shouldn't really
>be able to notice it. But I do when I test it. It's actually
>measureable on an S meter when doing A/B comparisons.
>Or at least it was for me when using a 989c tuner
>and minimum inductance vs coax fed.

You are telling us that you have evaluated the loss of a MFJ-989C antenna tuner + open wire line vs coax by on air A/B tests using the S-meter as your indicator.

Presumably you used exactly the same antenna, how are you sure that the feedline wasn't an active part of the antenna, was the measurement made over an ionospheric path, was the A/B comparison made at different times when other things may have changed?

What would be your confidence limits on such a experiment?

If you recorded your results, the variance would be revealing.

I suggest that the noise in your experiment would probably swamp the true difference between your A and B configuration, and therefore your conclusion might not be sound.

Your observation is (as you note) different to "on paper" expectations, that might be reason to re examine the experimental setup in search of an explanation.

Owen
--

434. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 22:17:42 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sb107cm3i6sa0@corp.supernews.com>
Source record: 65395

David J Windisch wrote:
> . . .
> Modeling it with EZNEC shows that, at lower frequencies, it can have more
> radiation at lower angles than some other simple antennas at the same height
> above ground, and that shifting the feedpoint away from the center of the
> phasing line produces a uni-directional pattern.
> . . .

I don't think you'll see both those effects (lower radiation angle and unidirectional pattern) at the same time.

You'll find that the elevation pattern of small to moderate sized Yagis, log periodic antennas, and most other horizontal arrays is essentially the same as that of a dipole, at least at the lower elevation angles. The reason is that most horizontal arrays have a broad free space pattern in the vertical plane -- not that much different than a dipole, in the forward array direction. The W8JK is unusual in that respect. Its free space vertical pattern is noticeably narrower than most other moderately sized horizontal arrays, so it has a narrower elevation pattern when mounted over ground, too. The net result is a greater concentration of radiation at lower angles.

Unfortunately, the cost of this narrower vertical pattern is a bidirectional horizontal pattern, resulting in half the applied power being wasted unless you happen to be talking to two oppositely-located people at once. So for a given power input, the gain is 3 dB less than a unidirectional antenna with the same lobe width, or the same as a unidirectional antenna with a considerably wider lobe. The only way to fairly compare the gains is by modeling and looking at the field strength of the antennas at the azimuth and elevation angle of interest. (Loss must be realistically included in the models, too.) It's entirely possible that the advantage of concentration of radiation at lower angles is more than offset by the lower gain due to its bidirectionality and/or loss (see the next paragraph). Of course, you can change the feed as Dave suggests to get a unidirectional pattern. But then your free space elevation pattern becomes a broad cardioid, and you end up with a dipole-like elevation pattern over ground.

Among the advantages of the W8JK are simplicity and the fact that the pattern changes very little over very wide bandwidths. On the down side are the bidirectionality and, particularly when spacing is close, a low feedpoint resistance and rapid change in feedpoint impedance with frequency. The feedpoint resistance can be low enough that wire loss becomes a concern, and if not, matching network and perhaps even feedline loss can become significant. You're almost certain to be

running a very high SWR on the feedline, so very low loss line is a must.

Roy Lewallen, W7EL

435. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 22:20:39 UTC
From: nm5k@wt.net
Message-ID: <1137018039.372523.114450@o13g2000cwo.googlegroups.com>
Source record: 65396

>You are telling us that you have evaluated the loss of a MFJ-989C
>antenna tuner + open wire line vs coax by on air A/B tests using the
>S-meter as your indicator.

Sure.

>Presumably you used exactly the same antenna, how are you sure that
the feedline wasn't an active part of the antenna, was the measurement
made over an ionospheric path, was the A/B comparison made at
>different times when other things may have changed?

The A/B testing is instant. All comparisons were done in the
usual up/down NVIS envionment. Mostly close in stations, and the
noise floor as another opinion. Just comparing any difference
in noise floor is a fairly accurate indication of efficiency in a
case like that. I didn't worry about the feedline being part
of the antenna, as I never would in the real world. I'm
running ladder line the whole way from the tuner to the antenna.
If the line is radiating, there would not be too much to do about
it at that point, without going to further measures. . I noticed
no obvious problems in tuning, or a "hot" line, rig, etc..

>What would be your confidence limits on such a experiment?

Very high overall.

>If you recorded your results, the variance would be revealing.

No. Not that time. It was just for my personal amusement.
In fact, I was out camping when I did that test.

>I suggest that the noise in your experiment would probably swamp the
true difference between your A and B configuration, and therefore your
>conclusion might not be sound.

What noise? I'm just using a switch to compare both antennas.
In that particular case, when switching to the coax fed, the noise
floor rose a bit, and strong signals that were way over S 9 rose
about 5 db worth on that particular meter. Easily repeatable
over and over. I'm not giving any numerical value to this
increase, I just know the coax fed system was the most
efficient. All signals increased when using coax. Noise floor,
desired signals, the whole deal. Switching to the tuner/LL fed
was like adding a small bit of attenuation. The way I see it,
the loss had to be at the tuner. And I was very careful in
tuning, using the least inductance to get a usable match.

>Your observation is (as you note) different to "on paper"
expectations, that might be reason to re examine the experimental
>setup in search of an explanation.

Why is it different? Actually, I found about what I was expecting.
I was expecting the coax fed to win. And it did.
Now, I realize this is a fairly sloppy test, and could be
improved greatly for accuracy, but there was no doubt
which system was better at that particular time.
The "on paper" expectations of the ladder line winning
would depend greatly on the losses of the tuner involved.
Sure, ladder line on it's own is very low loss, but add a
tuner, and things can change quite a bit as far as
system loss.
Now, granted the difference is small in general, but
I could see it. And if I can see it on a meter, it's not as
small as it's oft cracked up to be, or I wouldn't be able to
see it.
MK

436. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 22:27:58 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dq40pf0107c@enews1.newsguy.com>
Source record: 65397

ORIGINAL MESSAGE:

"Owen Duffy" <owen@no.where> wrote in message
news:00tas15me6bpn4801vrkd6cho9hkm2o0b6@4ax.com...
<snip>

You are telling us that you have evaluated the loss of a MFJ-989C
antenna tuner + open wire line vs coax by on air A/B tests using the
S-meter as your indicator.

~~~~~~

You can do a pretty good evaluation of a tuner's loss by putting your hand
on the cabinet after running a few minutes. Just imagine a 25, 50 or
whatever watt resistor in there dissipating the same heat.

One needs to calibrate one's hand, of course. :-)

Bill, W6WRT
~~~~~~

437. Re: radar and health ? digressing to keyless remotes...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 23:52:01 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dq45n1$k8t$1@engnntp2.cig.mot.com>
Source record: 65402

Some thoughts inserted in Dan's comments...***

"Dan Andersson" <dan@andersson.co.uk> wrote in message
news:9AqdnWDnPbDRsFneSa8jmw@karoo.co.uk...
> Thierry wrote:
> > ...
> > My company has installed a Radar Tower for Port survaillence. The tower
> > is about 50 meter height on top of the of a 3 stories building roof and
> > my office building just below the tower on the same level, 20 meter away
> > from the tower. At the same time, the surrounding is my working area (
> > Jetty Terminal for ships loading and unloading activities). I can say
> > that I'll be around that area 12 hours a day for another 20 years.
> > My question:
> > Is it safe to work in that area????
> > Thanks in advance
> > Thierry
>
> So, what about Radar then...
>
> First, There are two "kind" of RF radiation, non-ionizing and ionizing and
> effects emanating from very high voltage nearby different materials.

*** Perhaps a typo, but the ionizing type is not a kind of RF
radiation. Ionizing radiation is nuclear radiation. This radiation is able
to strip electrons (and other particles) from atoms. RF does not do this as
we use it. It is unfortunate that we use the term "radiation" for both
things. In any case, it is not part of the original question.

> Normally, non-ionising is to be more or less compared to sun light....

*** RF, Light is Electromagnetic radiation and produces, as far as we
know and can be proved, Heat.

> As long as you are not overheating, there should be no harmful effects on
> you. ...

*** Widely agreed, yet feared by many.

> Now, radar radiation ...sometimes with stupidly high power....

** Not to the people USING it.

> If you are standing near a RF radiating radar station, the average energy
is
> what heats you up ...

*** Regardless of where/how you receive RF power, it produces a heating effect. Standing in an open field, you are picking up RF from EVERY transmitter within ear-shot (so to speak) and you have RF currents in your body, but of course, the heat generated is infinitesimal. Tests have been done to measure the low, yet measurable actual heating of things such as the human face in the RF field of hand-held radio like power.

> Some frequencies are really bad
> for us because different parts of our bodies absorbs different amount of
> energy on different frequencies.

*** The effect is that of heating and the most prominant effect is the heating of the water content in things - us included. Water (H20) absorbs RF best around 900 MHz and again around 2500 MHz. There may be more frequencies, but these are the two used in microwave ovens (900 earlier and 2400 now - I believe). When it does absorbe it (as opposed to reflecting it, which it may do depending on how good the impedance match is) the water heats. The old (possibly urban myth) story is of the radar techs up at the old Dew Line Early warning radars would stand in fornt of the High power radar antennas to warm up when working outside. The standard joke is that they had small families after that...

> Let's take a party example... Many key fobs, alarm buttons for car locks
> etc, operates on 418MHz. It happens to be approximately where a normal
head
> are resonating... Try walking just about out of range for your alarm/lock
> button for your car, point the key fob against your head and press the
> unlock key, voila, in most cases, you increase the range of the key
fob....
> Dan / M0DFI

*** Mine is around 320 MHz. I seriously doubt that the head resonates there, or has much of a resonance to speak of at any frequency. This "range extending of the keyless remote" is easily duplicated by various placements of your other hand, arm and other parts of the body, near the remote. I play with it often walking across the parking lot to the car. It can be best explained considering that being conductive, the body can pick up RF from the fob and be an added part of the antenna in a quasi-parasitic-element manner. The "antenna" in the fob is, at best, an extremely poor one (not being anywhere near 1/4 or 1/2 a wavelength, nor being a loaded antenna that is matched to the transmitter) and any help it gets will frequently be observed as positive. This effect is very dependant on things like polarization of the auto's receive antenna (if there is one with a recognizable polarization), polarization of "you as an antenna", direction (as the transmit pattern will most certainly be directional as well as the receive pattern), and probably innumerable other complexities of the RF environment you happened to be immersed in.

Any kind of a conductor can be brought close to the fob and have a similar effect. I've done it with long screwdrivers and pieces of wire. Careful placement of a half wave wire can achieve astounding range....comparatively (to me, anyway, but then, there are those that say I am easily amused). Nerd that I am, it's fun to see how much range you actually can get...just

for the bleep of it. I should get a life at times. (:-) Please no agreement.

73, Steve, K,9.D'C;I

Oh yea...the origainsl Radar near the office question. Do a search on something like the Russian radar illumination of the American Embassy. I believe there are those that claim the Americans which the Russians were radiating with Radar got irritable or some such symptom(s).

73

438. SF Solar Flux Values: What's A Good Value For General SWL

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-11 23:59:58 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <Iq6dnfY5nbZlBljeRVn-uA@comcast.com>
Source record: 65398

Hello:

What's a "good" value for the SF Solar Flux values reported for general SWL
(30 MHz and below) ?

Is it freq. dependent ? How ?

Thanks,
B.

439. Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:00:34 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <O9GdnbsyOPa6AVjeRVn-sQ@comcast.com>
Source record: 65399

I have two, 2 meter radios, one in my basement shack and one in my computer room on the second floor. I have one 2 meter antenna located in the third floor attic. I would like a switch that would switch the antenna between the two radios and I want the radio that is not connected to the antenna to be connected to a dummy load.

Maybe I haven't looked hard enough, but all of the switches I have found so far, switch multiple antennas to one radio and ground the unused antenna(s).

Thanks for any help, jimbo

440. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:14:39 UTC
From: DOUGLAS SNOWDEN <snowden@peoplepc.com>
Message-ID: <Pbhxf.6776$%W1.2271@newsread2.news.atl.earthlink.net>
Source record: 65400

Yes, I am starting to think about just tilting the whole
mess up at one time.

Doug

"'Doc" <w5lz@cwis.net> wrote in message
news:dS0xf.5187$4o7.3172@newssvr24.news.prodigy.net...
> Doug,
> Oops, tapered? Hmm, that's gonna be fun. Sounds like there would
> have to be some type of 'stand-off' support and a constant rail
> seperation for the hazer to ride on. I think I'd have to recommend
> that you swap towers, or ideas.
> 'Doc
> (At 'Big Mac' on the outside looking in!)

441. From OP: Ratio For Legs ? Re: Inverted-L Antenna And Close Proximity Coax ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:18:01 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <vsidnYxxQcyoPVjeRVn-iA@comcast.com>
Source record: 65401

Hi,

Much thanks for info.

BTW: For general shortwave listening, is there a generally accepted
"optimum" for the length ratio between the horiz
and vert. legs ? Is the ratio freq. dependent ?

Thanks,
Bob

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:tnfas1ll9tkktt9scdvtqsu6o2nnn4sdvd@4ax.com...
> On Wed, 11 Jan 2006 07:40:52 -0500, "Robert11" <rgsros@notme.com>
> wrote:
>>The easiest way by far for me to get the coax to the receiver is to run it
>>up from the Balun to my second floor where the receiver is.
>>
>>If I run it upwards "right alongside" (or even tied to) the active
>>vertical
>>section of the antenna, will I have any problems ?
>>Remember, this would be coax, and I do receiving only.
>>
>>Guess I'm worried about if the grounded shield of the coax presents some
>>kind of ground element right next to the active element ?
>
> Hi Bob,
>
> There is no inherent advantage in the inverted L except it being a top
> loaded vertical with some horizontal polarization properties (being
> unbalanced and all). You can save yourself some bewilderment by
> driving the bottom directly into ground and simply connecting your
> coax right at your second floor window with the coax shield connecting
> to the wire going down, and the coax center to the wire going up and
> to the tree. When lightning suggests itself, unconnect the coax from
> your receiver and drop the coax out the window.
>
> You will never notice the proximity of the wood siding, but you may
> notice the proximity of house wiring that is in that wall. That
> wiring may be carrying house noise (like a computer's monitor's hash).
> However, that is best left for future investigation instead of
> paralyzing you now.
>

> Also, build an antenna tuner, or buy a very cheap, no-meter 3-knob Ham
> tuner (less than $30). When you get into better antennas, you get
> into overdrive possibilities from nearby AM stations (and I bet there
> are a bajillion there in Mass). This is called "desensing" when those
> stations (even when you are not tuned to them) overpower your radio
> and drive the AGC so high, that you cannot hear weaker DX in the SW
> bands.
>
> 73's
> Richard Clark, KB7QHC

442. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:35:05 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <vshxf.162196$aS5.24125@bignews4.bellsouth.net>
Source record: 65403

"Cecil Moore" <mycall@arrl.net> wrote in message
news:1sYwf.5083$fb4.758@newssvr14.news.prodigy.com...
> Jerry wrote:
>> How about someone who simply doesn't LIKE alcoholic drinks? :)
>
> That someone has never tasted Bailey's. :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

What I don't know at this stage won't hurt me. Not to be argumentive, but I have heard that before. "But you'll LOVE this beer or that wine or that whiskey". I can't tell the difference; the "great" beer or the wonderful wine tastes the same as the "cheap" (?) stuff. BARF! ;) The Coca Cola still wins! LOL!

73

J

443. Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:39:01 UTC
From: David <webreply@orbitcoms.com>
Message-ID: <Fyhxf.213965$V7.122439@news-server.bigpond.net.au>
Source record: 65404

Can someone explain to me how a new antenna design is started. Do you take an initial standard design and then enter it into a modeling program and optimize it for the required parameters ?

Is there a suitable reference book that would explain this process. I am thinking about the Cebik antenna modeling book but think this may only cover how to model and change an existing design,would it cover how to come up with the initial design in the first place ?

Example: Say I want to design a 4 Element Yagi at 921 MHz using 6mm diameter elements.

Is there a standard formula that would be used to calculate initial lengths and distances between elements. Then you enter this design into say EZNEC and use the optimizer to tweak the design.

Thanks in advance

Regards

David

444. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:41:30 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <k89bs1t2rlj07rrrbp67afmc9ip37ovffr@4ax.com>
Source record: 65405

On Wed, 11 Jan 2006 17:00:34 -0700, jimbo <jimbo62@spamex.com> wrote:

>I have two, 2 meter radios, one in my basement shack and one in my
>computer room on the second floor. I have one 2 meter antenna located
>in the third floor attic. I would like a switch that would switch the
>antenna between the two radios and I want the radio that is not
>connected to the antenna to be connected to a dummy load.
>
>Maybe I haven't looked hard enough, but all of the switches I have
>found so far, switch multiple antennas to one radio and ground the
>unused antenna(s).
>
>Thanks for any help, jimbo

There's an mfj switch, MFJ-1700C, that handles six antennas on one
side, six transceivers on the other. Rated up to 30 mhz, so may or may
not be right for 2 meters.

bob
k5qwg

445. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 00:52:27 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dq498d016ak@enews4.newsguy.com>
Source record: 65407

ORIGINAL MESSAGE:

> "Cecil Moore" <mycall@arrl.net> wrote in message What I don't know at this
> stage won't hurt me. Not to be argumentive, but I have heard that before.
> "But you'll LOVE this beer or that wine or that whiskey". I can't tell
> the difference; the "great" beer or the wonderful wine tastes the same as
> the "cheap" (?) stuff. BARF! ;) The Coca Cola still wins! LOL!

~~~~~~

I used to think that way too. Only bought the cheap stuff until one day
someone gave me a bottle of Glenlivet scotch. I rarely buy it because I
don't want to mortgage the house, but now I *do* know the difference. :-)

Bill, W6WRT
~~~~~~

446. Re: SF Solar Flux Values: What's A Good Value For General SWL

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 01:00:00 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dq49mj017kn@enews4.newsguy.com>
Source record: 65409

ORIGINAL MESSAGE:

"Robert11" <rgsros@notme.com> wrote in message
news:Iq6dnfY5nbZlBljeRVn-uA@comcast.com...
> Hello:
>
> What's a "good" value for the SF Solar Flux values reported for general
> SWL (30 MHz and below) ?
>
> Is it freq. dependent ? How ?
>
> Thanks,
> B.

~~~~~~

It would take hours to really answer your question fully, but I think I can help:

For most hams, when the flux gets above 100, things are picking up. Above 125, you'll hear comments about how great the bands are. Above 150, you can do DXCC in a week running QRP. Above 175, you'll ask the wife to call in sick for you so you can chase DX. Above 200, you won't have to call in sick anymore because you quit your job.

How's that? :-)

Bill, W6WRT
~~~~~~

447. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 01:04:50 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <cnabs1pt4e76hgo2teq7dp906mvvnqi2i1@4ax.com>
Source record: 65406

On Wed, 11 Jan 2006 17:00:34 -0700, jimbo <jimbo62@spamex.com> wrote:

>I have two, 2 meter radios, one in my basement shack and one in my
>computer room on the second floor. I have one 2 meter antenna located
>in the third floor attic. I would like a switch that would switch the
>antenna between the two radios and I want the radio that is not
>connected to the antenna to be connected to a dummy load.
>
>Maybe I haven't looked hard enough, but all of the switches I have
>found so far, switch multiple antennas to one radio and ground the
>unused antenna(s).

You need a transfer switch. Transco makes model 310 if you can find
one. They're usually priced like the high quality stuff they are tho.

448. Rax bassett and Savoy Electronics

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 01:21:17 UTC
From: David Thompson <thompson@mindspring.com>
Message-ID: <haixf.6336$ZA2.1830@newsread1.news.atl.earthlink.net>
Source record: 65408

Does anyone in South Florida know what happened to Rex Bassett and or Savoy Electronics of Ft. Lauderdale?

Rex was making big antennas before WW II plus had a line of big (mainly commercial) transmitters).

In the 1950's Rex did some pioneer work on mobile antenna coils filled with helium. Later he sold Bassett
80 to 10 antennas (coils filled Helium) thru Savoy Electronics. He wrote for CQ and advertised in CQ and QST.

I suspect Rex has long since passed away but can someone clue me in on his history?

73 Dave K4JRB

449. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 01:31:28 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <Qjixf.119$H71.20@newssvr13.news.prodigy.com>
Source record: 65410

"Bill Turner" <noway@nohow.com> wrote in message
news:dq498d016ak@enews4.newsguy.com...
> ORIGINAL MESSAGE:
> I used to think that way too. Only bought the cheap stuff until one day
> someone gave me a bottle of Glenlivet scotch. I rarely buy it because I
> don't want to mortgage the house, but now I *do* know the difference. :-)
>
> Bill, W6WRT
>
>
Have to agree, bought some really high dollar Scotch for New Years Eve in
1954 while in Japan. Flavor wasn't the same but it was as smooth as
chocolate milk. I was asleep before midnight. Had to quit that sort of thing
though, my Dad was alcoholic and I figured I'd probably inherited the gene.

Harold Burton

450. Re: SF Solar Flux Values: What's A Good Value For General SWL

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 01:54:41 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <PNydnY5ETcRHK1jeRVn-hw@comcast.com>
Source record: 65411

Bill Turner wrote:
> ORIGINAL MESSAGE:
>
>
> SNIPPED

>>What's a "good" value for the SF Solar Flux values reported for general
>>SWL (30 MHz and below) ?
>>
>>Is it freq. dependent ? How ?
>>
>>Thanks,
>>B.
>
>
> ~~~~~~
>
> It would take hours to really answer your question fully, but I think I can
> help:
>
> For most hams, when the flux gets above 100, things are picking up. Above
> 125, you'll hear comments about how great the bands are. Above 150, you can
> do DXCC in a week running QRP. Above 175, you'll ask the wife to call in
> sick for you so you can chase DX. Above 200, you won't have to call in sick
> anymore because you quit your job.
>
> How's that? :-)
>
> Bill, W6WRT

Now, Add in the K and A indicators and the issues gets complex. In non technical terms the K and A averages subtract from the 'goodness' of the flux. Low K, 1 through 3, indicate good propagation. High K, 5+, indicate poor propagation good for taking a nap..

A values below 4 are good, 5 to 10 fair, 11+ are take a nap. Now if the A index hits 20+ take a long nap.

Seriously, Flux above 150 suggests very good propagation when K and A are low. Flux below 100 and high K and A suggests propagation is poor.

451. Re: From OP: Ratio For Legs ? Re: Inverted-L Antenna And Close Proximity Coax ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 02:33:40 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <egfbs1pe6cmgl6ebrk0204prmmijsmft04@4ax.com>
Source record: 65412

On Wed, 11 Jan 2006 19:18:01 -0500, "Robert11" <rgsros@notme.com>
wrote:

>BTW: For general shortwave listening, is there a generally accepted
>"optimum" for the length ratio between the horiz
>and vert. legs ? Is the ratio freq. dependent ?

Hi Bob,

If there's any its on the order of 1:3. However, there's no point going there with any high expectations - or even low expectations. Going from a whip, or internal antenna to the external antenna you have your mind set on is a leap in improvement. The next leap of improvement will require $500 to a grand to set up a tower - and then start thinking about the antenna on it. All steps between leaps are small steps indeed.

You might try looking into phased arrays, but you should really concentrate on making one good antenna and noting your baseline in performance. On marker is how much noise do you live in? SWL varies considerably through the bands, through the day/night, through the seasons, and through the sun spot cycle. You have to consider that what you may be trying to hear just isn't hearable because of those same variables, much less an antenna.

73's
Richard Clark, KB7QHC

452. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 02:44:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sbgjhmh57cvae@corp.supernews.com>
Source record: 65413

Bill Turner wrote:
>
> You can do a pretty good evaluation of a tuner's loss by putting your hand
> on the cabinet after running a few minutes. Just imagine a 25, 50 or
> whatever watt resistor in there dissipating the same heat.
>
> One needs to calibrate one's hand, of course. :-)
>
> Bill, W6WRT
>

I disagree.

I'd venture to guess that the average output power of a 100 watt PEP sideband rig is no more than about 10 watts unless heavy compression is being used. And I think you'll find that a 10 watt resistor inside a typical tuner cabinet -- representing loss of all the transmitted power -- will make a barely noticeable difference in the cabinet temperature.

Add to that the fact that the thermal time constant of the tuner is probably longer than the typical transmitting session, so the power needs to be averaged over the receiving periods, too.

If you're running a kW, you're up to 100 watts or so during transmit only. But can you tell the difference with your "calibrated" hand between 1 dB loss in the tuner (25 watts), 3 dB loss in the tuner (50 watts), or 100% of the power lost in the tuner (100 watts)?

I'd love to see the results of a double-blind study where a measured tuner loss is compared with an estimate made using Bill's method. But I think the chances of that are about the same as finding a double-blind study of the audio quality enhancement of $1000 speaker cables.

Roy Lewallen, W7EL

453. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 02:53:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sbh4k4gvisc1d@corp.supernews.com>
Source record: 65414

A very good source of starting designs is _Yagi Antenna Design_ by James Lawson, W2PV, published by the ARRL. It clearly illustrates the various tradeoffs which can be made in Yagi design, and gives lots of alternatives. There is no "ideal" design, since there are so many tradeoffs to be made -- gain, front/back ratio, bandwidth, size, which you can't maximize all at once.

EZNEC doesn't have an optimizer -- if you use EZNEC you have to tweak the design yourself. People who have used optimizing programs have told me they've often been able to improve on the "optimized" design by hand tweaking with EZNEC.

Roy Lewallen, W7EL

David wrote:
> Can someone explain to me how a new antenna design is started. Do you
> take an initial standard design and then enter it into a modeling
> program and optimize it for the required parameters ?
>
> Is there a suitable reference book that would explain this process. I am
> thinking about the Cebik antenna modeling book but think this may only
> cover how to model and change an existing design,would it cover how to
> come up with the initial design in the first place ?
>
> Example: Say I want to design a 4 Element Yagi at 921 MHz using 6mm
> diameter elements.
>
> Is there a standard formula that would be used to calculate initial
> lengths and distances between elements. Then you enter this design into
> say EZNEC and use the optimizer to tweak the design.
>
> Thanks in advance
>
> Regards
>
> David
>
>

454. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 03:06:37 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <yGjxf.162244$aS5.88702@bignews4.bellsouth.net>
Source record: 65415

"kd5sak" <kd5sak@sbcglobal.net> wrote in message
news:Qjixf.119$H71.20@newssvr13.news.prodigy.com...
>
> "Bill Turner" <noway@nohow.com> wrote in message
> news:dq498d016ak@enews4.newsguy.com...
>> ORIGINAL MESSAGE:
>> I used to think that way too. Only bought the cheap stuff until one day
>> someone gave me a bottle of Glenlivet scotch. I rarely buy it because I
>> don't want to mortgage the house, but now I *do* know the difference. :-)
>>
>> Bill, W6WRT
>>
>>
> Have to agree, bought some really high dollar Scotch for New Years Eve in
> 1954 while in Japan. Flavor wasn't the same but it was as smooth as
> chocolate milk. I was asleep before midnight. Had to quit that sort of
> thing though, my Dad was alcoholic and I figured I'd probably inherited
> the gene.
>
> Harold Burton

That's just it for me. I don't want to run the risk, and after seeing what it did to friends and relatives as well, it made up my mind in high school. Tried it. It tasted AWFUL no matter what, so I prefer a Coke. Oh, if someone insists I take a sip with him, I will. But since I simply do not like the taste of alcoholic drinks, I simply drink enough to satisfy the buyer and let it go. I just don't like it the same way some people don't like broccoli or cauliflower and I never will. :)

73

Jerry
>
>

455. Re: radar and health ? digressing to keyless remotes...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 03:24:29 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <NZjxf.456659$zb5.122895@bgtnsc04-news.ops.worldnet.att.net>
Source record: 65416

Steve,

Your assertion is simply not correct. You may be thinking of particle radiation, such as electron (beta), neutron, proton, alpha, cosmic, etc., but pure photon radiation can certainly be "ionizing". A well-known example is ordinary medical x-rays. Ionizing photons would not typically be called "RF", but there is no difference other than the energy levels.

(I spent so much time in the early stages of my career dealing with intense sources of ionizing radiation (photons) that I still glow in the dark.)

Back to the original question, ordinary radar is clearly not "ionizing". Not a good idea to be too close, due to possible thermal effects, but otherwise no big deal.

73,
Gene
W4SZ

Steve Nosko wrote:
> Some thoughts inserted in Dan's comments...***
>
>
> "Dan Andersson" <dan@andersson.co.uk> wrote in message
> news:9AqdnWDnPbDRsFneSa8jmw@karoo.co.uk...
>
>>
>>First, There are two "kind" of RF radiation, non-ionizing and ionizing and
>>effects emanating from very high voltage nearby different materials.
>
>
> *** Perhaps a typo, but the ionizing type is not a kind of RF
> radiation. Ionizing radiation is nuclear radiation. This radiation is able
> to strip electrons (and other particles) from atoms. RF does not do this as
> we use it. It is unfortunate that we use the term "radiation" for both
> things. In any case, it is not part of the original question.

456. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 03:30:13 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dq4ig602a40@enews3.newsguy.com>
Source record: 65418

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11sbgjhmh57cvae@corp.supernews.com...
> I disagree.
>
> I'd venture to guess that the average output power of a 100 watt PEP
> sideband rig is no more than about 10 watts unless heavy compression is
> being used. And I think you'll find that a 10 watt resistor inside a
> typical tuner cabinet -- representing loss of all the transmitted power --
> will make a barely noticeable difference in the cabinet temperature.

Well for heaven's sake of course! Who would use SSB to make a test like
this? Put it on CW and put a brick on the key. Come back after dinner. Then
you'll know.
>
> Add to that the fact that the thermal time constant of the tuner is
> probably longer than the typical transmitting session, so the power needs
> to be averaged over the receiving periods, too.

Average, shmaverage. 100% duty cycle during the test.

>
> If you're running a kW, you're up to 100 watts or so during transmit only.
> But can you tell the difference with your "calibrated" hand between 1 dB
> loss in the tuner (25 watts), 3 dB loss in the tuner (50 watts), or 100%
> of the power lost in the tuner (100 watts)?

Between 25, 50 and 100? You betcha, although calibration of hand might have
to be checked.
Remember, we're not talking NIST here, just an idea of what's happening.
>
> I'd love to see the results of a double-blind study where a measured tuner
> loss is compared with an estimate made using Bill's method. But I think
> the chances of that are about the same as finding a double-blind study of
> the audio quality enhancement of $1000 speaker cables.

Bill's method will be less accurate, more cost effective and good enough.
:-)

Bill, W6WRT

457. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 03:34:26 UTC
From: Crazy George <gfm99@attglobal.net>
Message-ID: <43c5ce5c@kcnews01>
Source record: 65417

Roy:

Whatever happened to YO? Was that one of your creations which you stopped
selling? Or was it Beezley's?

--
Crazy George
W5VPQ

My real address is my ham call <at>ARRL.NET The ATTGlobal is a SPAM trap.
"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11sbh4k4gvisc1d@corp.supernews.com...
>A very good source of starting designs is _Yagi Antenna Design_ by James
>Lawson, W2PV, published by the ARRL. It clearly illustrates the various
>tradeoffs which can be made in Yagi design, and gives lots of alternatives.
>There is no "ideal" design, since there are so many tradeoffs to be made --
>gain, front/back ratio, bandwidth, size, which you can't maximize all at
>once.
>
> EZNEC doesn't have an optimizer -- if you use EZNEC you have to tweak the
> design yourself. People who have used optimizing programs have told me
> they've often been able to improve on the "optimized" design by hand
> tweaking with EZNEC.
>
> Roy Lewallen, W7EL
>
> David wrote:
>> Can someone explain to me how a new antenna design is started. Do you
>> take an initial standard design and then enter it into a modeling program
>> and optimize it for the required parameters ?
>>
>> Is there a suitable reference book that would explain this process. I am
>> thinking about the Cebik antenna modeling book but think this may only
>> cover how to model and change an existing design,would it cover how to
>> come up with the initial design in the first place ?
>>
>> Example: Say I want to design a 4 Element Yagi at 921 MHz using 6mm
>> diameter elements.
>>
>> Is there a standard formula that would be used to calculate initial
>> lengths and distances between elements. Then you enter this design into
>> say EZNEC and use the optimizer to tweak the design.
>>
>> Thanks in advance
>>

>> Regards
>>
>> David
>>

458. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 04:00:16 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sbl2ib3gta963@corp.supernews.com>
Source record: 65419

Crazy George wrote:
> Roy:
>
> Whatever happened to YO? Was that one of your creations which you stopped
> selling? Or was it Beezley's?

That was Brian Beezley's program. The last I heard, you can still buy it and his other programs, but only by mail. Look up K6STI in one of the amateur radio databases for his address.

Roy Lewallen, W7EL

459. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 04:04:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sbl9i6acv2qf4@corp.supernews.com>
Source record: 65420

Bill Turner wrote:
>
> Well for heaven's sake of course! Who would use SSB to make a test like
> this? Put it on CW and put a brick on the key. Come back after dinner. Then
> you'll know.
> . . .

So that's where those unidentified carriers that stay on for hours come from. I'd always wondered.

Roy Lewallen, W7EL

460. Re: radar and health ? digressing to keyless remotes...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 04:16:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uKkxf.601$_S7.436@newssvr14.news.prodigy.com>
Source record: 65421

Gene Fuller wrote:
> ..., but pure photon radiation can certainly be "ionizing".

My ITT "Reference Data for Radio Engineers" says gamma rays
are EM waves which are certainly "ionizing".
--
73, Cecil http://www.qsl.net/w5dxp

461. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 07:17:33 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <qjvbs19rnk6qiu6ehc1ovk666ugdfctgql@4ax.com>
Source record: 65422

On Wed, 11 Jan 2006 18:44:00 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>I'd venture to guess that the average output power of a 100 watt PEP
>sideband rig is no more than about 10 watts unless heavy compression is
>being used. And I think you'll find that a 10 watt resistor inside a

Roy, I did some experiments a few years back when the FCC OET formed a view that the average power of an SSB voice signal was something like 40% of PEP. My experiment was to modulate a TS440 normally with ALC, with and without compression, and to analyse the audio captured from a comms monitor. The ratios averaged over 30s that I obtained were -13dB and -11dB. Those numbers are consistent with the practice in carrier telephone systems in estimating the power of a n channel multiplex.

Later, I have made the same measurements off-air with FSM which reports measurements with an average responding detector, RMS detector, quasi peak detector and peak detector. The results averaged over seconds were -10 to -15dB. I have no idea where OET got -4dB (averaged over 6 minutes).

I don't doubt that it is possible to get several dB loss in an ATU, but it says more about the understanding of the person using it in that way than the basis for a law for tuner loss.

A chap was telling me on air a few weeks back how good his MFJ tuner was, it could tune anything. He got 1:1 and discovered he didn't even have the aerial connected, how good is that! I suggested he take the covers off and see if the coil support strips had softened / deformed / charred. How could I tell him to stop viewing the world through an SWR meter?

Owen
--

462. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 07:34:30 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq50q6$36i$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65423

"Owen Duffy" wrote -

How could I tell him to stop viewing the world through an
> SWR meter?
==========

Easy! Just tell him he has never viewed the world through an SWR
meter. He hasn't got one. He has a TLI. <smiley>

Reg.

463. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 07:40:07 UTC
From: mike.e.worrall@abc.com
Message-ID: <1137051607.531222.244510@g44g2000cwa.googlegroups.com>
Source record: 65424

Here you go:

http://www.dbp4switches.com/d-xn.htm

MW

464. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 09:27:34 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <aipxf.36654$uy3.1834@trnddc08>
Source record: 65425

"jimbo" <jimbo62@spamex.com> wrote in message
news:O9GdnbsyOPa6AVjeRVn-sQ@comcast.com...
>I have two, 2 meter radios, one in my basement shack and one in my computer
>room on the second floor. I have one 2 meter antenna located in the third
>floor attic. I would like a switch that would switch the antenna between
>the two radios and I want the radio that is not connected to the antenna to
>be connected to a dummy load.
>
> Maybe I haven't looked hard enough, but all of the switches I have found
> so far, switch multiple antennas to one radio and ground the unused
> antenna(s).
>
> Thanks for any help, jimbo

Jimbo

How much power?? I have built some fairly good coax switches for 144
MHz with microswitches. They wont stand up to a KW. But they sure can
work OK at 10 or 20 watts.

I'd consider using three spdt coax switches for your application.

Jerry

Jerry

465. Increase selectivity by a Q multiplier

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 09:43:38 UTC
From: SOMMERGIBILE <mym@iltonobody.it.invalid>
Message-ID: <43c6261b$1$334$5fc30a8@news.tiscali.it>
Source record: 65276
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors

http://web.tiscali.it/am2zy/

466. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 14:08:35 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <R4-dnVwfK9B__1venZ2dnUVZ_smdnZ2d@comcast.com>
Source record: 65277

jimbo wrote:
> I have two, 2 meter radios, one in my basement shack and one in my
> computer room on the second floor. I have one 2 meter antenna located in
> the third floor attic. I would like a switch that would switch the
> antenna between the two radios and I want the radio that is not
> connected to the antenna to be connected to a dummy load.
>
> Maybe I haven't looked hard enough, but all of the switches I have found
> so far, switch multiple antennas to one radio and ground the unused
> antenna(s).
>
> Thanks for any help, jimbo

Thanks for the replies. I have some homework to do! I was thinking of
a simple manual switch, similar to the Alph-Delta two position antenna
switch. The spdt and dpdt switches are a whole new ball game for me.

Thanks for any additional advice, jimbo

467. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 14:16:01 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <1qncs191l12sktnafsutgk2oh8qnpo6jdb@4ax.com>
Source record: 65278

There are many parameters to chose in designing an antenna. Beyond the antenna itself are the costs, tolerable size, available materials and available tools.
I recently took the ARRL antenna course and purchased Roy's EZNEC+ program. I describe my current level as an "advanced beginner".

I once scaled a 4 (5?) element yagi for an antenna measuring event from the Arrl Handbook to 1296mhz using a piece of plastic tube for a boom and #12 wire for elements. The measured gain and the plot looked pretty much like the book said it would. It fits in a "book-sized" box.

My current project is "What can I do with a 20 foot radiator?" Working out the details (the devil is indeed in the details!) sure is a lot easier with EZNEC than it is with physical modeling.

There are not many antennas that cannot be evolved from a straight piece of wire.

On Thu, 12 Jan 2006 00:39:01 GMT, David <webreply@orbitcoms.com> wrote:

>Can someone explain to me how a new antenna design is started. Do you
>take an initial standard design and then enter it into a modeling
>program and optimize it for the required parameters ?
>
>Is there a suitable reference book that would explain this process. I am
>thinking about the Cebik antenna modeling book but think this may only
>cover how to model and change an existing design,would it cover how to
>come up with the initial design in the first place ?
>
>Example: Say I want to design a 4 Element Yagi at 921 MHz using 6mm
>diameter elements.
>
>Is there a standard formula that would be used to calculate initial
>lengths and distances between elements. Then you enter this design into
>say EZNEC and use the optimizer to tweak the design.
>
>Thanks in advance
>
>Regards
>
>David
>
John Ferrell W8CCW

468. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 15:14:32 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <snuxf.192$or4.159@newssvr12.news.prodigy.com>
Source record: 65279

John Ferrell wrote:
> My current project is "What can I do with a 20 foot radiator?" Working
> out the details (the devil is indeed in the details!) sure is a lot
> easier with EZNEC than it is with physical modeling.

Assuming a 20 ft. vertical with 20 ft. radials, how about
feeding it with an autotuner, like the SGC-230, and using
it for 40m-10m? It will also work at reduced power output
on 75m.
--
73, Cecil, http://www.qsl.net/w5dxp

469. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 15:23:27 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <0bscs152je2fben8que38ee2nsc4i5s2ah@4ax.com>
Source record: 65280

On Wed, 11 Jan 2006 18:53:06 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>A very good source of starting designs is _Yagi Antenna Design_ by James
>Lawson, W2PV, published by the ARRL. It clearly illustrates the various
>tradeoffs which can be made in Yagi design, and gives lots of
>alternatives. There is no "ideal" design, since there are so many
>tradeoffs to be made -- gain, front/back ratio, bandwidth, size, which
>you can't maximize all at once.
>
>EZNEC doesn't have an optimizer -- if you use EZNEC you have to tweak
>the design yourself. People who have used optimizing programs have told
>me they've often been able to improve on the "optimized" design by hand
>tweaking with EZNEC.
>
>Roy Lewallen, W7EL

I second Roy's recommendation and add one. If Yagi antennas are the
interest then in addition to Lawson, you need Leeson; "Physical Design
of Yagi Antennas", by David Leeson, W6QHS.

It is not enough to come up with a super-duper electrical design if
you can't actually assemble it or keep it in the air after it's
assembled.

For example many "optimized" or "fifty-ohm feedpoint" designs are so
mechanically unbalanced that they put a large unbalanced strain on the
rotator if mounted near the boom center. If mounted at a static
balance point they turn into a windcock and damage the rotor from that
stress.

So a well engineered antenna is one that not only performs well from a
gain, FB and SWR standpoint, but is also easy on the tower and rotator
and will last years in the air without degradation.

470. Re: Home Made Hazer Ideas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 15:43:38 UTC
From: Luke <luke_no_solo@luke.com>
Message-ID: <43C67928.5F2C627A@luke.com>
Source record: 65281

If he builds it with aluminum and uses the correct
grade, should be no problem.

Since his tower tapers, he could use larger
wheels at the top of the device to keep him
plumb at the higher levels.

Have you looked into renting a bucket lift,
not too expensive for one time and a lot safer !

>
> Maybe he doesn't quite know what to look for.
> Many years ago an article was published here how to make this Hazer type
> device..It looked heavy on the side of his tower.
> If anyone wants the article, I could try to find it and make a scan.
> Eskay.

471. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 16:06:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <08vxf.156$F_3.73@newssvr29.news.prodigy.net>
Source record: 65282

Owen Duffy wrote:
> http://www.vk1od.net/temp/G5RV-W5DXP.GIF

Owen, what software did you use to generate that graphic?
--
TNX & 73, Cecil, http://www.qsl.net/w5dxp

472. Re: Dipoles and the rig's RF ground...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 16:15:05 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dq5vab02kt5@enews4.newsguy.com>
Source record: 65283

ORIGINAL MESSAGE:

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11sbl9i6acv2qf4@corp.supernews.com...

> So that's where those unidentified carriers that stay on for hours come

> from. I'd always wondered.
>
> Roy Lewallen, W7EL

~~~~~~

Huh-uh. I do some testing on the air, but always at the appropriate times.
Ten meters in the wee hours of the morning, 80 meters at high noon, etc. I
don't QRM and I do identify.

Bill, W6WRT
~~~~~~

473. Re: 8jk

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 17:19:26 UTC
From: Bob Dixon <dixon.8@osu.edu>
Message-ID: <dixon.8-AE14D2.12192612012006@charm.magnus.acs.ohio-state.edu>
Source record: 65284

There are some other advantages to the 8JK antenna that are not so obvious:

1. You don't need to worry about whether a DX station is coming in via long or short path, since you get them both at once, and the strongest one wins.

2. You can investigate propagation to various parts of world by listening for your own round-the-world echo in various directions.

I was a colleague of John Kraus W8JK for many years, and he used to tell me about his round-the-world experiments. I was in his shack once when he did it. Of course you need rapid switching to go from transmit to receive. Typically a single dit is used.

Bob W8ERD

474. Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 18:14:29 UTC
From: johannblake@yahoo.com
Message-ID: <1137089669.757781.233540@g44g2000cwa.googlegroups.com>
Source record: 65285

I have a 2.4 Ghz transceiver circuit that is used in a mobile wireless application. The application runs from a watch battery so power is crucial. The device will only need to transmit up to 4 or 5 meters to its receiver. I need to know what kind of antenna to use. I read that a dipole is typical. My question are:

1 - what is the minimum length that this antenna can be?
2 - what is the minimum diameter that the antenna can be?
3 - can the antenna be etched on one side of a PCB (to avoid attaching a physical cable)?
4 - does the length / diameter of the antenna affect the power output?
5 - any manufacturers you know of that sell very small antennas for this application?

What I need is the smallest antenna possible!

Thank you for your insight.
Johann Blake

475. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 18:34:54 UTC
From: "void * clvrmnky()" <clvrmnky-uunet@coldmail.com.invalid>
Message-ID: <ijxxf.9064$43.911@nnrp.ca.mci.com!nnrp1.uunet.ca>
Source record: 65286

On 12/01/2006 1:14 PM, johannblake@yahoo.com wrote:
> I have a 2.4 Ghz transceiver circuit that is used in a mobile wireless
> application. The application runs from a watch battery so power is
> crucial. The device will only need to transmit up to 4 or 5 meters to
> its receiver. I need to know what kind of antenna to use. I read that a
> dipole is typical. My question are:
>
> 1 - what is the minimum length that this antenna can be?
> 2 - what is the minimum diameter that the antenna can be?
> 3 - can the antenna be etched on one side of a PCB (to avoid attaching
> a physical cable)?
> 4 - does the length / diameter of the antenna affect the power output?
> 5 - any manufacturers you know of that sell very small antennas for
> this application?
>
> What I need is the smallest antenna possible!

Look into low power Wi-Fi designs and you should find the right one for
your application.

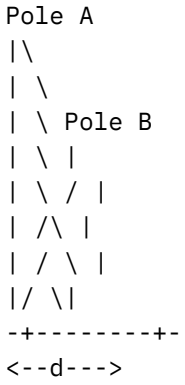
476. Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 19:09:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1Qxxf.8331$dW3.1056@newssvr21.news.prodigy.com>
Source record: 65287

Problem:
There's a rather strange antenna with two straight wire elements. The two elements are supported by two non-conductive poles, Pole A and Pole B of unequal lengths. The bottoms of the poles are at ground level and the ground is flat.

One straight 10 foot wire runs directly from the bottom of Pole A to the top of Pole B. One straight 20 foot wire runs directly from the bottom of Pole B to the top of Pole A. The feedpoint of this strange antenna is where the wires intersect and that point is exactly five feet above the ground. (The two wires form a non-symetrical 'X' between the poles and the center of the 'X' is exactly five feet above the ground.)

Question: What are the heights of Pole A and Pole B, and how far apart are the two poles?



P.S. None of my math students can solve this problem.
--
73, Cecil, http://www.qsl.net/w5dxp

477. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 20:00:54 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <n4pi93-cem.ln1@p400bob.personal.cox.net>
Source record: 65288

Hi Johann

There is no doubt a lot of info on internet articles you could wade.
through. Since you have a practical requirement though I'll try and answer.

The length and diameter of an antenna is related to the frequency. In
rough terms a half wave in free space on 2.4GHz is calculated as
300/2400MHz/2 metres or about 60mm. A half wave dipole antenna tends to
be shorter than this by a percentage between about 85% and 98%. The
variation being a function of the material diameter vs its length (ie
the fatter the antenna element the shorter its length) If you etch the
design into a PCB the dielectric around it (PCB insulative material)
will lower that percentage more. I don't know how much off hand.

Within limits however you can match any transmitter to any simple
antenna length. Small variations and errors in length (say 20%) wont
deter very much from the performance provided you have done a good job
coupling the transmitter to it. If however you use a simple element of
more than a half wavelength you can get an undesirable pattern of
radiation from it. Gain antennas like yagi's will suffer badly from this
much variation though.

Coupling/tuning in this sense means getting a maximum power transfer
from the transmitter to the antenna.

Antennas for longer distances on 2.4GHz are almost always devices built
for gain. They can use a cluster of dipoles phased to concentrate the
radiation into a narrower pattern, hence the received signal at the
other end is stronger than from a simple dipole. The downside is of
course if either end is moving/rotating in respect to the other. Loss of
signal results. (Think of a searchlight)

Yes etching an antenna on a PCB is a good way to do it. "Patch antennas"
might be the term to look for, as well as "slot antennas" with PCB as
part of the search criteria.

One of the conditions you didn't specify is whether the ends of the link
are fixed or moving. If they are fixed you can get away with lower power
and gain antennas. If they are moving you probably want an antenna that
radiates equally in all directions. This is actually difficult to do as
there is always variation in different angles from the antenna. A dipole
for instance radiates best at 90 degrees to the element. There is
however virtually no radiation directly off the ends. This doesn't make
the system unusable though. Some of the signal will get through via
reflection off other objects and a very useful amount will come off at
(say) 10% from off the ends. If you have enough power margin it will

still work. It will be something like (say) 5m range at almost any attitude and 50m range if you hold the antenna just right!

Smallest antenna? A slot would be maybe 60mm long and 20mm wide if etched to a PCB. A quad type element etched on a PCB may me 30mm x 30mm. You could also make a 1/4 wave groundplane. That's a 30mm or so wire perpendicular to a ground plane area (eg PCB) a minimum of 60mm diameter. If you can suffer some efficiency loss you can etch a loaded dipole pattern on a PCB maybe 15 x 10mm but it would be a good idea to test whether the distance loss will be okay in your environment.

If you hand make the antenna the coax etc attachment becomes a large lumped reactance/resistive load that has to be allowed for when adjusting for best coupling. Likewise a etched PCB antenna will be affected by components mounted on the reverse side as well as the (say) plastic etc box it is mounted in. The rule is to tune it with everything attached.

For the purists out there I have watered this down some and tried to keep heavy theory out of it. I hope however you'll still find it useful.

Cheers Bob W5/VK2YQA

johannblake@yahoo.com wrote:

>
> What I need is the smallest antenna possible!
>
> Thank you for your insight.
> Johann Blake
>

478. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 23:00:54 UTC
From: "void * clvrmnky()" <clvrmnky-uunet@coldmail.com.invalid>
Message-ID: <GcBxf.9083$43.4180@nnrp.ca.mci.com!nnrp1.uunet.ca>
Source record: 65289

```
On 12/01/2006 2:09 PM, Cecil Moore wrote:
> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
> Pole A
> |\
> | \
> | \ Pole B
> | \ |
> | \ / |
> | /\ |
> | / \ |
> |/ \|
> -+--------+-
> <--d--->
>

Curse you! I'm pretty sure this can be solved with just basic trig, but
I've forgotten it all. Law of sines the key?
```

479. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-12 23:59:26 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <y3Cxf.8640$M%4.3508@newsread3.news.atl.earthlink.net>
Source record: 65290

"Cecil Moore" <mycall@arrl.net> wrote in message
news:1Qxxf.8331$dW3.1056@newssvr21.news.prodigy.com...
> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
> Pole A
> |\
> | \
> | \ Pole B
> | \ |
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> |/ \|
> -+--------+-
> <--d--->
>
> P.S. None of my math students can solve this problem.
> --
> 73, Cecil, http://www.qsl.net/w5dxp

Don't remember where I saw it (about 30 years ago), but there was a parallel
resistor problem that was solved similar to this.

480. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 00:18:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%kCxf.8393$dW3.92@newssvr21.news.prodigy.com>
Source record: 65291

void * clvrmnky() wrote:
> Curse you! I'm pretty sure this can be solved with just basic trig, but
> I've forgotten it all. Law of sines the key?

I've had no trouble coming up with two equations and two
unknowns but have had a heck of a time trying to solve
those two equations. I've solved it graphically and by
itteration, but an algebraic solution has so far escaped
me. An algebraic solution is what I would appreciate.
After awhile, I'll post the two equations with two unknowns.
--
73, Cecil http://www.qsl.net/w5dxp

481. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 01:27:50 UTC
From: Dave <noone@nowhere.com>
Message-ID: <wPGdndbuQPCDn1reRVn-jw@crocker.com>
Source record: 65292

"Cecil Moore" <mycall@arrl.net> wrote in message
news:%kCxf.8393$dW3.92@newssvr21.news.prodigy.com...
> void * clvrmnky() wrote:
>> Curse you! I'm pretty sure this can be solved with just basic trig, but
>> I've forgotten it all. Law of sines the key?
>
> I've had no trouble coming up with two equations and two
> unknowns but have had a heck of a time trying to solve
> those two equations. I've solved it graphically and by
> itteration, but an algebraic solution has so far escaped
> me. An algebraic solution is what I would appreciate.
> After awhile, I'll post the two equations with two unknowns.
> --
> 73, Cecil http://www.qsl.net/w5dxp

i get it down to an ugly 4th order poly that i just don't feel like trying
to solve tonight. the way i went was:

two pythagorean equations (where G=separation distance along the ground)
A^2+G^2=20^2
B^2+G^2=10^2
subtract these two to get
A^2-B^2=300
solve for A
A=sqrt(B^2+300)

then use similar triangles to get two equations like:

(A-5)/g1=A/G
(B-5)/g2=B/G
where g1+g2=G and g1 is the horizontal distance from pole A to the feed
point and g2 is the horizontal distance from pole B to the feedpoint.
sort them out to get
g1=G(A-5)/A
g2=G(B-5)/B
add them to get
g1+g2=G(A-5)/A + G(B-5)/B
and since g1+g2=G
G=G(A-5)/A + G(B-5)/B
cancel a G, expand, contract, collect... etc to get
5/A+5/B=1
substitute the sqrt(B^2+300) for A and do a bunch of expansion and
collecting
to get
B^4-10B^3+300B^2-3000B+7500=0

which numerically gives a B about 6.85 giving A about 18.6 and then go back to the beginning and solve one of the pythagorean formulas for G to get about 7.3.

there may be a simpler substitution using a bunch of similar triangles and getting it down to 3 equations, but i think you will always end up with a 4th order equation to solve. even doing it graphically is ugly.

482. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 03:37:32 UTC
From: richardharrison@webtv.net
Message-ID: <12635-43C7207C-17@storefull-3254.bay.webtv.net>
Source record: 65293

Bob Bob wrote:
"In rough terms a half wave in free space on 2.4 GHz is calculated as 300/2400 MHz/2 metres or about 60 mm."

I agree with Bob Bob.

A quad antenna has a smaller maximum dimension then 1/2-wave. Its circumference is a full wave, but that is divided by pi to calculate its diameter. The configuration is not very important. It can be circular, triangular, square or a figure with almost any number of sides. Performance depends on the area enclosed by the figure. If square, it has 1/4-wave sides. The diagonal is 1.414 times the length of a side. In the case of a square quad for 2400 MHz, the sides are are about 1.25 inches long.

A quad with a circumference of 5 inches may seem small but it is not a "small loop" which couples to the rest of the world via the plane of the loop. The quad couples to the rest of the world broadside to itself. Kraus gives the radiation resistance of a full-wave loop in Figure 7-10 on page 209 of his 3rd edition of "Antennas" as just over 100 ohms.

Best regards, Richard Harrison, KB5WZI

483. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 04:37:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <H8Gxf.359$or4.274@newssvr12.news.prodigy.com>
Source record: 65294

Dave wrote:
> i get it down to an ugly 4th order poly that i just don't feel like trying
> to solve tonight.
> B^4-10B^3+300B^2-3000B+7500=0

Yep, that's what I came up with also but I don't remember
how to solve it. There's only one real-world solution. I
wonder if two of those solutions are imaginary and one
negative?

> which numerically gives a B about 6.85 giving A about 18.6 and then go back
> to the beginning and solve one of the pythagorean formulas for G to get
> about 7.3.

I worked them out to a little more accuracy than that but
those are correct values within your accuracy. My solution
is at work and I'm at home but I remember the distance
between poles is 7.299 ft.

I also came up with two simultaneous equations involving
trig functions of angles but couldn't solve them either.
It looks like a simple problem but looks can be deceiving.
--
73, Cecil http://www.qsl.net/w5dxp

484. Re: Query..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 04:47:30 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11sec455idk2h15@corp.supernews.com>
Source record: 65295

As Roy has said many times, what counts is the gain in the desired direction
and angle above the horizon. A three-wire, terminated, well-designed
rhombic can have a lot of such gain. However, while its impedance bandwidth
(frequency range over which the input impedance does not significantly
change) will be huge, a pattern bandwidth of perhaps 3:1 is about all that
can be attained. In other words, the pattern degrades, as frequency is
increased, to an unacceptable degree long before the input impedance
degrades.

On the other hand, to be able to work VU4 from the upper Midwest might
require a large and tall rhombic.

73 Mac N8TT

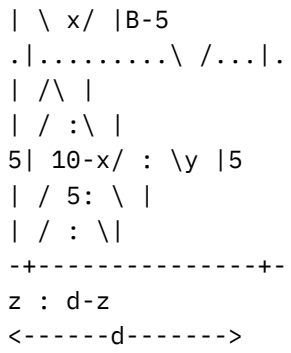
--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11s5ru2qve3vje9@corp.supernews.com...
> Don't get too hung up on efficiency. What counts is signal strength.
> Suppose you have a bidirectional antenna. Unless you're talking to two
> people in opposite directions at the same time, it doesn't matter if the
> antenna is 100% efficient and half the power goes into an unused reverse
> lobe or whether it goes into a resistor which makes the antenna 50%
> efficient. The result is exactly the same as far as the other station is
> concerned. So to the extent that the rhombic isn't optimal, it's because
> it's inherently bidirectional, not necessarily because it's inefficient.
>
> A bidirectional antenna is usually not an optimum choice. For the same
> number of elements or same amount of real estate, you can usually make a
> unidirectional antenna which has a single main lobe of about the same
> width but 3 dB greater gain. Or, you can have a main lobe of about the
> same gain as before but greater width, which is an advantage when the
> antenna can't be rotated. However, this doesn't say anything about
> simplicity, which is the main attractiveness of a rhombic, along with
> its bandwidth.
>
> Roy Lewallen, W7EL

485. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 05:29:11 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <zZqdnZMfoYoxpFreRVn-ig@adelphia.com>
Source record: 65296

Cecil Moore wrote:
> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
> Pole A
> |\
> | \
> | \ Pole B
> | \ |
> | \ / |
> | /\ |
> | / \ |
> |/ \|
> -+--------+-
> <--d--->
>
> P.S. None of my math students can solve this problem.
I think you can solve this by constructing equations based strictly on
Pythagoras.
(Enlarging your drawing to label some more sections)

```
Pole A
|\
| \
| \
| \
| \
| \20-y
A-5| \ Pole B
| \ |
```


| \ x/ |B-5
.|.....\ /...|.
| /\ |
| / :\ |
5| 10-x/ : \y |5
| / 5: \ |
| / : \|
-+---------------+-
z : d-z
<------d------->
Here I have broken side A into sections 5 and 5A-5,
B into 5 and B-5,
20 into y and 20-y
10 into x and 10-x,
and d into z and d-z

Nor for some right triangles, a la Pythagoras.
We have 6 unknowns (A,B,d, x,y,z), so we need 6 triangles to t
completely solve the system.

First the original triangles:

A^2 + d^2 = 20^2
B^2 + d^2 = 10^2

Then some using the smaller, inside triangles:

5^2 + z^2 = (10-x)^2
5^2 + (d-z)^2 = y^2
(A-5)^2 + z^2 = (20-y)^2
(B-5)^2 + (d-z)^2 = x^2

Shall I bore you with the process of wading through the solution of
this set?

Nah...

A = 18.6202
B = 6.8345
d = 7.3000

I got a little help from Mathcad. ;-)

486. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 11:49:26 UTC
From: Kev <kevcat@optunet.com.au>
Message-ID: <43c793c4$0$2255$afc38c87@news.optusnet.com.au>
Source record: 65297
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Gary Smith wrote:
> Glenn that would be great if you could possibly scan the docs and email
> them, really appreciate that, Thanks.
>
> Gary
>
>
>
>>I've got one - defective - I think I popped the switching diodes by
>>accidentally transmitting thru it. I know I've got the dox 'somewhere'
>>- just gotta dig 'em out.
>>
>>From memory, the four pin cable from the main unit sends a rotating DC
>>bias to each of the switching diodes in the box. There's a diode at the
>>antenna base too, by design. I haven't opened the box yet, but the
>>diode at the antenna base is ITT BA 282 Cathode (bar) to coax
>>shield.
>>
>>If/when I find the dox, I'll get back to you. Let me know how you
>>progress.
>>
>>Glenn ZL2TLD
>
>
>
I am also looking for the same info as I have the same unit that is
almost complete but no manual or anything else about completing it

Kev

487. Newbie Questions On Receiving Only Antenna Installation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 12:47:40 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <56mdnWcdCOz4PFreRVn-jw@comcast.com>
Source record: 65298

Hi,

Some probably dumb questions, but am a bit of a beginner with all of this.

Will be putting up an otside sloper or inverted L.

Receiving only.

a. If I run the antenna wire thru a closed metal loop for fastening
purposes, do I run into any effets from having a
"shorted turn" over the active antenna wire (receiving only) ?

b. Any problem if I coil up a bit of the excess wire, perhaps a foot or
two, into a 6" loop at the end ?
Guess I'm asking about it becoming an added inductor due to the coil.

Thanks,
B.

488. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 14:27:08 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0NOxf.465$Jd.220@newssvr25.news.prodigy.net>
Source record: 65299

John Popelish wrote:
> I got a little help from Mathcad. ;-)

Will Mathcad solve simultaneous equations?
--
73, Cecil http://www.qsl.net/w5dxp

489. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 15:05:47 UTC
From: news <yes@optusnet.com.au>
Message-ID: <43c7c19f$0$25697$afc38c87@news.optusnet.com.au>
Source record: 65300
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

http://members.aol.com/homingin/DSEfix.html
improving the dick smith radio direction finder

490. Re: Starting point for antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 15:11:39 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <a8ffs1tfv8gd1tq4739pqclfvketfktv55@4ax.com>
Source record: 65301

You miss my motives!
I have a Cushcraft A4 beam that works very well with my Ten Tec
Pegasus transceiver (inboard LDG tuner). In my eyes it is the perfect
rig!

I am not breaking any new ground. I am simply doing the lab exercise
of validating the EZNEC calculations. I may find it worthwhile to drop
to an 8-foot radiator and higher (10-Meters?) for ease of
construction. The principal area of interest is in radiators less than
1/4 wave in length.

At the moment, I am especially interested in the different feed
arrangements. I am starting with the "Gotham" style of a single base
loading coil and minimal radials then I plan on an autotransformer
arrangement. I have a fair amount of room, a lot of scrap metal and
wire is cheap! The principal limitations are time and my level of
intellect...

Staying on track will be a problem, moving the load up the radiator is
already looking appealing!

On Thu, 12 Jan 2006 15:14:32 GMT, Cecil Moore <mycall@arrl.net> wrote:

>John Ferrell wrote:
>> My current project is "What can I do with a 20 foot radiator?" Working
>> out the details (the devil is indeed in the details!) sure is a lot
>> easier with EZNEC than it is with physical modeling.
>
>Assuming a 20 ft. vertical with 20 ft. radials, how about
>feeding it with an autotuner, like the SGC-230, and using
>it for 40m-10m? It will also work at reduced power output
>on 75m.
John Ferrell W8CCW

491. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:01:02 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <29Qxf.94004$6K2.41559@edtnps90>
Source record: 65302

> Will Mathcad solve simultaneous equations?
> --
> 73, Cecil http://www.qsl.net/w5dxp

It can handle matrices.

Frank

492. Re: Newbie Questions On Receiving Only Antenna Installation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:01:04 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <49Qxf.428$NS6.253@newssvr30.news.prodigy.com>
Source record: 65303

Robert11,
In general, and depending on the frequencies you want to listen
to, the answers to your questions is probably 'No'. Shouldn't be
a problem.
'Doc

493. Re: Newbie Questions On Receiving Only Antenna Installation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:18:13 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <pbkfs15mj5bt2l18t3hob7t42g13tnn1a4@4ax.com>
Source record: 65304

On Fri, 13 Jan 2006 07:47:40 -0500, "Robert11" <rgsros@notme.com>
wrote:

>a. If I run the antenna wire thru a closed metal loop for fastening
>purposes, do I run into any effets from having a
> "shorted turn" over the active antenna wire (receiving only) ?

Hi Bob,

Some. By the degree of the metal's resistance. It would take a very
serious degree to be noticeable. Hence Doc's suggestion of probably
"No" stands.

>b. Any problem if I coil up a bit of the excess wire, perhaps a foot or
>two, into a 6" loop at the end ?
> Guess I'm asking about it becoming an added inductor due to the coil.

Also called a choke. It can help at some frequencies and impede at
others (too many details left unsaid by you). Again, from what you do
say, probably "No" still stands.

73's
Richard Clark, KB7QHC

494. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:28:53 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrndsfla5.570.bit-bucket@shell.config.com>
Source record: 65305

On Thu, 12 Jan 2006 19:09:49 GMT, Cecil Moore wrote:
> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
> Pole A
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> | \ Pole B
> | \ |
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> |/ \|
> -+--------+-
> <--d--->
>
> P.S. None of my math students can solve this problem.

It does not involve math. It involves logic and problem solving --
two skills missing in today's (U.S.) (public school) students.

The poles are standing side-by-side.

Jonesy
--
Marvin L Jones | jonz | W3DHJ | linux
Pueblo, Colorado | @ | Jonesy | OS/2 __
38.24N 104.55W | config.com | DM78rf | SK

495. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:38:34 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <hrlfs1lgohs46f3ff5vslu9kvpg0tg1alv@4ax.com>
Source record: 65306

On 13 Jan 2006 16:28:53 GMT, Allodoxaphobia <bit-bucket@config.com>
wrote:

>On Thu, 12 Jan 2006 19:09:49 GMT, Cecil Moore wrote:
>> Problem:
>> There's a rather strange antenna with two straight wire elements.
>> The two elements are supported by two non-conductive poles, Pole
>> A and Pole B of unequal lengths. The bottoms of the poles are at
>> ground level and the ground is flat.
>>
>> One straight 10 foot wire runs directly from the bottom of Pole
>> A to the top of Pole B. One straight 20 foot wire runs directly
>> from the bottom of Pole B to the top of Pole A. The feedpoint of
>> this strange antenna is where the wires intersect and that point
>> is exactly five feet above the ground. (The two wires form a
>> non-symetrical 'X' between the poles and the center of the 'X'
>> is exactly five feet above the ground.)
>>
>> Question: What are the heights of Pole A and Pole B, and
>> how far apart are the two poles?
>>
>> Pole A
>> |\
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>> |/ \|
>> -+--------+-
>> <--d--->
>>
>> P.S. None of my math students can solve this problem.
>
>It does not involve math. It involves logic and problem solving --
>two skills missing in today's (U.S.) (public school) students.
>
>The poles are standing side-by-side.

Bingo.

496. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:43:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <4NQxf.494$Jd.25@newssvr25.news.prodigy.net>
Source record: 65307

Frank wrote:
>>Will Mathcad solve simultaneous equations?
>
> It can handle matrices.

So how would you put these two equations in a matrix?

2*sin(B) = sin(A)/[2*sin(A)-1]

2*cos(B) = cos(A)

:-)
--
73, Cecil, http://www.qsl.net/w5dxp

497. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:50:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YSQxf.499$Jd.496@newssvr25.news.prodigy.net>
Source record: 65308

Wes Stewart wrote:

> Allodoxaphobia <bit-bucket@config.com> wrote:
>>The poles are standing side-by-side.
>
> Bingo.

I must have missed something. Here's one discussion
of the math involved.

http://www.mathpages.com/home/kmath253.htm
--
73, Cecil, http://www.qsl.net/w5dxp

498. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 16:57:55 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <n_Qxf.94008$6K2.84000@edtnps90>
Source record: 65309

"Cecil Moore" <mycall@arrl.net> wrote in message
news:4NQxf.494$Jd.25@newssvr25.news.prodigy.net...
> Frank wrote:
>>>Will Mathcad solve simultaneous equations?
>>
>> It can handle matrices.
>
> So how would you put these two equations in a matrix?
>
> 2*sin(B) = sin(A)/[2*sin(A)-1]
>
> 2*cos(B) = cos(A)
>
> :-)
> --
> 73, Cecil, http://www.qsl.net/w5dxp

Good point, obviously not linear algebra since you cannot separate the variables. The only way I can see to handle such a problem is successive substitution.

73,

Frank

499. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 17:11:02 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43c7c34d@fidonet.org>
Source record: 65310

"Cecil Moore" bravely wrote to "All" (13 Jan 06 04:37:59)
--- on the heady topic of "Re: Brain Teaser"

CM> From: Cecil Moore <mycall@arrl.net>
CM> Xref: core-easynews rec.radio.amateur.antenna:222684

CM> I worked them out to a little more accuracy than that but
CM> those are correct values within your accuracy. My solution
CM> is at work and I'm at home but I remember the distance
CM> between poles is 7.299 ft.

CM> I also came up with two simultaneous equations involving
CM> trig functions of angles but couldn't solve them either.
CM> It looks like a simple problem but looks can be deceiving.

I think you are right the problem might be solved easily with geometry
by breaking up the problem using similar triangles. The product of the
triangles on one side being equal to the other side. No trig needed.
However, I haven't actually tried to solve it.

A*s*i*m*o*v

... Some people find fault like there was a reward offered.

500. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 17:21:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <JkRxf.506$Jd.144@newssvr25.news.prodigy.net>
Source record: 65311

Frank wrote:
> Good point, obviously not linear algebra since you cannot separate the
> variables. The only way I can see to handle such a problem is successive
> substitution.

I actually used EXCEL and itteration to solve
those two equations.
--
73, Cecil, http://www.qsl.net/w5dxp

501. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 17:40:46 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <b396c$43c7e622$471d24c1$14780@ALLTEL.NET>
Source record: 65312

Cecil , I found a solution that I find a bit easier. I started with 2
circles with the diameters equal to the two wires.

"Cecil Moore" <mycall@arrl.net> wrote in message
news:H8Gxf.359$or4.274@newssvr12.news.prodigy.com...
> Dave wrote:
> > i get it down to an ugly 4th order poly that i just don't feel like
trying
> > to solve tonight.
> > B^4-10B^3+300B^2-3000B+7500=0
>
> Yep, that's what I came up with also but I don't remember
> how to solve it. There's only one real-world solution. I
> wonder if two of those solutions are imaginary and one
> negative?
>
> > which numerically gives a B about 6.85 giving A about 18.6 and then go
back
> > to the beginning and solve one of the pythagorean formulas for G to get
> > about 7.3.
>
> I worked them out to a little more accuracy than that but
> those are correct values within your accuracy. My solution
> is at work and I'm at home but I remember the distance
> between poles is 7.299 ft.
>
> I also came up with two simultaneous equations involving
> trig functions of angles but couldn't solve them either.
> It looks like a simple problem but looks can be deceiving.
> --
> 73, Cecil http://www.qsl.net/w5dxp

502. Re: Newbie Questions On Receiving Only Antenna Installation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 18:19:03 UTC
From: de Mac <de.Mac.21ldjl@news.radiobanter.com>
Message-ID: <de.Mac.21ldjl@news.radiobanter.com>
Source record: 65322

Robert11 Wrote:
> Hi,
>
> Some probably dumb questions, but am a bit of a beginner with all of
> this.
>
> Will be putting up an otside sloper or inverted L.
>
> Receiving only.
>
> a. If I run the antenna wire thru a closed metal loop for fastening
> purposes, do I run into any effets from having a
> "shorted turn" over the active antenna wire (receiving only) ?
>
> b. Any problem if I coil up a bit of the excess wire, perhaps a foot
> or
> two, into a 6" loop at the end ?
> Guess I'm asking about it becoming an added inductor due to the coil.
>
> Thanks,
> B.

hello B

answers depend on are you using insulated or uninsulated wire
if using uninsulated wire you will want a insulator between the wire
and the "closed metal loop for fastening"
coiled up excess wire is no real prob excpt
if its uninsulated and the turns rub each other
just cut off the excess wire
if its insulated wire don't worry

wire hf receive antennas like a sloper or inverted L are very
forgiving
realy can play around with it and not degrade how well it will receive
for most wire antennas, I use THHN # 14 gage stranded insulated house
wire
sells cheap at home owners hell
wire antennas for receive are fun to play with
don't worry
just stay away from the power lines and you will be ok

yours truly Mac w8znx

--
de Mac

503. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 18:25:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <egSxf.2410$_S7.2026@newssvr14.news.prodigy.com>
Source record: 65313

Fred W4JLE wrote:
> Cecil , I found a solution that I find a bit easier. I started with 2
> circles with the diameters equal to the two wires.

Is it a graphical or algebraic solution?
--
73, Cecil, http://www.qsl.net/w5dxp

504. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 18:31:41 UTC
From: kl7r <kl7r@yahoo.com>
Message-ID: <1137177101.292588.232660@g14g2000cwa.googlegroups.com>
Source record: 65314

There are grounds and there are are grounds.

Lightning ground
House wiring safety ground
Antenna counterpoise (ground)
Ham shack common RF bus ground

If you live in an apartment building or if you use soundcard modes you
will soon find out that using the building's electrical safety ground
as your antenna's counterpoise is a bad thing.

Dont try to use an endfed wire antenna in an apartment.
You will be unhappy if you try to use your TV and soundcard speakers as
your antenna counterpoise.

I came to the conclusion that balanced antennas are the answer.

Put up a dipole or, better yet, a loop antenna.
Balanced antennas have their "ground" as part of the antenna itself.

I personally have never used a balun at the antenna but have used
choke baluns near the rig and have used 4:1 baluns at the tuner.
I often use an antenna tuner and ladder line so am not so sure that a
balun at the antenna is a good thing under those conditions.

I have experimented with "artificial grounds"
They are just a series L-C circuit that you insert between your
station common RF bus and your counterpoise system.
Series LC circuits act like a short when tuned so the idea is that
when your station counterpoise system is tuned with the series
LC circuit, your station bussbar ground will have the highest current
path to counterpoise system ground

You can make an RF current meter with a diode a toroid
a little magnet wire and a volt meter.

MFJ artificial grounds or tuned counterpoise tuners have you
tune for max current through the series LC circuit.

I have found that max current through the series LC circuit is not
always the best setting for getting minimum rf in the shack. I
use my soundcard speaker amp as my canary - tune the
counterpoise for least audio out of the speakers.

KL7R

PS, I live in a rain forest. I dont know a thing about lightning
grounds.

505. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 18:50:12 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <EDSxf.466841$zb5.323427@bgtnsc04-news.ops.worldnet.att.net>
Source record: 65315

Nice try, but at least today's students are taught to read the entire
problem.

"Zero" separation is a solution for part of the problem, but it ignores
the requirement for an "X" configuration with the crossing at "exactly"
5 feet.

Perhaps you have a definition for the crossing point of two parallel
lines. I must have missed that one in my edumacation.

Beware of zero in math problems. It is really easy to prove that 1 = 2
and other such niceties.

73,
Gene
W4SZ

Allodoxaphobia wrote:

>
> It does not involve math. It involves logic and problem solving --
> two skills missing in today's (U.S.) (public school) students.
>
> The poles are standing side-by-side.
>
> Jonesy

506. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 19:43:29 UTC
From: jpopelish@rica.net
Message-ID: <1137181409.423923.271590@f14g2000cwb.googlegroups.com>
Source record: 65316

Cecil Moore wrote:
> John Popelish wrote:
> > I got a little help from Mathcad. ;-)
>
> Will Mathcad solve simultaneous equations?

Yes, in several ways. My favorite is the iterative solver, whereyou specify and arbitrary number of equstions or other constraints and gesses for the solutions that you think are near the solutions you expect. This solver churns through a search and refinement algorithm till it comes as close as possible ot meeting your constriants.

There is also a single equation (root) solver that works on any equation you can put in the form of (expression)=0. There is also a matrix form of the solver in which you make a matrix of the equations, specify in a second equation, the variables you want solutions for, and those variables are solved for symbolically in terms of the other variables. You can also select a variable in an equation in only one variable (but not necessarily with the variable isolated on one side and all the math on the other) andfrom the symbolic menu, select solve variable. Sometimes this gets stumped or produces such a mess that it just puts all the arithmetic needed on the clipboard as a huge expression. If the equation contained several variables and you select symbolic variable solve, a symbolic expression in terms of all the other variables except the one selected that equals that variable is produced (again, unless you stump the computer).

I used this last method to work through the substitutions to get down to an equation in one vaiable, but that produced the clipboard full of arithmetic expressions, so I use the ierative solver to find the solution of that one equation in one unknown that produced a result near my guess (for the baseline, d, in my case, that was less than 10 but more than sqrt(10^2-5^2) to eliminate the negative and imaginary results).

507. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 20:26:29 UTC
From: Glenn McAllister <"(callsign)"@orcon.net.nz>
Message-ID: <43C80CF5.2B5C@orcon.net.nz>
Source record: 65317
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Kev wrote:
>
> Gary Smith wrote:
> > Glenn that would be great if you could possibly scan the docs and email
> > them, really appreciate that, Thanks.
> >
> > Gary
> >
> >
> >
> >>I've got one - defective - I think I popped the switching diodes by
> >>accidentally transmitting thru it. I know I've got the dox 'somewhere'
> >>- just gotta dig 'em out.
> >>
> >>From memory, the four pin cable from the main unit sends a rotating DC
> >>bias to each of the switching diodes in the box. There's a diode at the
> >>antenna base too, by design. I haven't opened the box yet, but the
> >>diode at the antenna base is ITT BA 282 Cathode (bar) to coax
> >>shield.
> >>
> >>If/when I find the dox, I'll get back to you. Let me know how you
> >>progress.
> >>
> >>Glenn ZL2TLD
> >
> >
> >
> I am also looking for the same info as I have the same unit that is
> almost complete but no manual or anything else about completing it
>
> Kev

All those who would like a copy of the dox when I find them, email me
and I'll keep a list.

Glenn ZL2TLD

508. Re: 2nd Floor grounding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 20:35:22 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq92uaehu1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65318

"kl7r" wrote
> Dont try to use an endfed wire antenna in an apartment.

==========

If the domestic plumbing system, hot and cold pipes, central heating system and mains wiring are connected together, then the impedance to true ground, as a whole, will be very low. The RF potential difference between 'ground' and true ground at the lower HF frequencies will be small.

In principle it could be measured - IF you could find a real ground.

The actual distance in wavelengths between 'ground' and true ground, wherever that may be, is indeterminate and inconsequential.

In the extreme case the elevated ground system can be considered as a sort of Faraday cage with no more than normal interference between the electrical equipments in the vicinity.

By not using low-feedpoint-impedance anrtennas, such as exactly 1/4-wavelength or 3/4-wavelength in length, things can very often continue as normal. It is, in any case, undesirable to use very low impedance antennas even in good ground circumstances.

And antennas crudely 1/2-wavelength in length work just as well with either good or very poor ground systems.

Appartment and flat dwellers should not be discouraged from simple endfed antennas. In all probability they will be successful. Very often they are unable to erect anything else.

My own experience extends from successful working with end-fed wires from bedrooms to a 13th storey in an appartment block. The appartment block antenna was a 0.3 wavelength sloping wire on the 160m band, open circuit at the bottom end fed at the top.

Ground was an aligator-clip connection to the nearest hot water radiator pipe in the domestic central heating system. But I could just have well used the cold water pipe to the flush-tank in the toilet had it been nearer.

Appartment dwellers - carry on as normal!

Reg, G4FGQ.

509. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 20:39:47 UTC
From: Dave <noone@nowhere.com>
Message-ID: <F6OdnVN4R9SBjVXeRVn-jg@crocker.com>
Source record: 65319

"Cecil Moore" <mycall@arrl.net> wrote in message
news:YSQxf.499$Jd.496@newssvr25.news.prodigy.net...
> Wes Stewart wrote:
>
>> Allodoxaphobia <bit-bucket@config.com> wrote:
>>>The poles are standing side-by-side.
>>
>> Bingo.
>
> I must have missed something. Here's one discussion
> of the math involved.
>
> http://www.mathpages.com/home/kmath253.htm
> --
> 73, Cecil, http://www.qsl.net/w5dxp

technically that solution doesn't work since the intersection height of the
two wires can't be solved for if there is no separation between the poles.

510. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 20:42:08 UTC
From: Crazy George <gfm99@attglobal.net>
Message-ID: <43c810b8@kcnews01>
Source record: 65320

Cecil:

That problem has been around for 60 years that I can account for, and it was old back then. It is commonly presented as two ladders leaning against adjacent buildings. It appears in classic brain teaser books, etc. I no longer recall the solution, and there is an elegant one, but a search for the "crossed ladders problem" may yield that solution.

--
Crazy George
W5VPQ
My real address is my ham call <at>ARRL.NET The ATTGlobal is a SPAM trap.

511. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 21:03:30 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <va5gs1tgbn1l2gs4pl25vm9dknmeqiffjv@4ax.com>
Source record: 65321

On Fri, 13 Jan 2006 14:42:08 -0600, "Crazy George"
<gfm99@attglobal.net> wrote:

>Cecil:
>
>That problem has been around for 60 years that I can account for, and it was
>old back then. It is commonly presented as two ladders leaning against
>adjacent buildings. It appears in classic brain teaser books, etc. I no
>longer recall the solution, and there is an elegant one, but a search for
>the "crossed ladders problem" may yield that solution.

http://mathworld.wolfram.com/CrossedLaddersProblem.html
--

512. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 21:12:52 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dq954j$g73$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65323

The trouble with pure maths programs is worrying about whether the answer is the right one from amongst the great variety of other possible "equally correct" answers.

For confidence in results, it is necessary to know EXACTLY how a program deals with the problem it is presented with. Generally this is unknown. Users are seldom mathematicians. Otherwise they would not be using the program.
....
Reg.

513. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 21:37:37 UTC
From: Dave <noone@nowhere.com>
Message-ID: <3uCdndWcxcMygFXenZ2dnUVZ_tKdnZ2d@crocker.com>
Source record: 65324

i used the polyroots function in mathcad and it comes up with 4 roots. two are imaginary and one is less than 5 which is impossible... if you shifted coordinates to the 5' high crossing level and calculate from there the equation is a bit simpler i think and the impossible root would come out negative. the one that fits gives:
A=18.621
B=6.835
G=7.299

"Cecil Moore" <mycall@arrl.net> wrote in message
news:H8Gxf.359$or4.274@newssvr12.news.prodigy.com...
> Dave wrote:
>> i get it down to an ugly 4th order poly that i just don't feel like
>> trying to solve tonight.
>> B^4-10B^3+300B^2-3000B+7500=0
>
> Yep, that's what I came up with also but I don't remember
> how to solve it. There's only one real-world solution. I
> wonder if two of those solutions are imaginary and one
> negative?
>
>> which numerically gives a B about 6.85 giving A about 18.6 and then go
>> back to the beginning and solve one of the pythagorean formulas for G to
>> get about 7.3.
>
> I worked them out to a little more accuracy than that but
> those are correct values within your accuracy. My solution
> is at work and I'm at home but I remember the distance
> between poles is 7.299 ft.
>
> I also came up with two simultaneous equations involving
> trig functions of angles but couldn't solve them either.
> It looks like a simple problem but looks can be deceiving.
> --
> 73, Cecil http://www.qsl.net/w5dxp

514. [question] current/voltage amplitude inducted in antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 23:16:06 UTC
From: Antey <antey@o2.pl>
Message-ID: <dq9cde$b10$1@nemesis.news.tpi.pl>
Source record: 65325

Hello Everyone,

There's one thing I need to know for the purpose of my simulation
- that is the order of magnitude for currents/voltages inducted
in the antenna, or, to be more precise - answer for the question below:
can termination of the transmission line be simulated in Spice as
voltage generator (VSIN) with 75 Ohm internal impedance and particular
frequency AND amplitude ? What amplitude could it be ?

Best Regards,
Peter

515. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-13 23:55:15 UTC
From: news <yes@optusnet.com.au>
Message-ID: <43c83db7$0$17190$afc38c87@news.optusnet.com.au>
Source record: 65326
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

yes thanks glenn. I would like a copy of the circuit.

email james_about@hotmail.com with the info please.

Any thing you need also. I keep a fairly extensive collection of radio software and circuits.

And gidday to Kev ....tanker wanker. private joke.

516. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 00:22:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ivXxf.598$Jd.594@newssvr25.news.prodigy.net>
Source record: 65327

Dave wrote:

> i used the polyroots function in mathcad and it comes up with 4 roots. two
> are imaginary and one is less than 5 which is impossible... if you shifted
> coordinates to the 5' high crossing level and calculate from there the
> equation is a bit simpler i think and the impossible root would come out
> negative. the one that fits gives:
> A=18.621
> B=6.835
> G=7.299

Exactly what my EXCEL program yielded.
--
73, Cecil http://www.qsl.net/w5dxp

517. Re: [question] current/voltage amplitude inducted in antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 00:28:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <BAXxf.599$Jd.535@newssvr25.news.prodigy.net>
Source record: 65328

Antey wrote:
> There's one thing I need to know for the purpose of my simulation
> - that is the order of magnitude for currents/voltages inducted
> in the antenna, or, to be more precise - answer for the question below:
> can termination of the transmission line be simulated in Spice as
> voltage generator (VSIN) with 75 Ohm internal impedance and particular
> frequency AND amplitude ? What amplitude could it be ?

Are you simulating a receiving antenna or parasitic elements?
The main wave in an ordinary transmitting dipole is conducted,
not inducted.
--
73, Cecil http://www.qsl.net/w5dxp

518. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 03:18:30 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <Ge2dneQFMt0b8FXeRVn-hw@adelphia.com>
Source record: 65329

Jerry wrote:
> "kd5sak" <kd5sak@sbcglobal.net> wrote in message
> news:Qjixf.119$H71.20@newssvr13.news.prodigy.com...
>
>>"Bill Turner" <noway@nohow.com> wrote in message
>>news:dq498d016ak@enews4.newsguy.com...
>>
>>>ORIGINAL MESSAGE:
>>>I used to think that way too. Only bought the cheap stuff until one day
>>>someone gave me a bottle of Glenlivet scotch. I rarely buy it because I
>>>don't want to mortgage the house, but now I *do* know the difference. :-)
>>>
>>>Bill, W6WRT
>>>
>>>
>>
>>Have to agree, bought some really high dollar Scotch for New Years Eve in
>>1954 while in Japan. Flavor wasn't the same but it was as smooth as
>>chocolate milk. I was asleep before midnight. Had to quit that sort of
>>thing though, my Dad was alcoholic and I figured I'd probably inherited
>>the gene.
>>
>>Harold Burton
>
>
> That's just it for me. I don't want to run the risk, and after seeing what
> it did to friends and relatives as well, it made up my mind in high school.
> Tried it. It tasted AWFUL no matter what, so I prefer a Coke. Oh, if someone
> insists I take a sip with him, I will. But since I simply do not like the
> taste of alcoholic drinks, I simply drink enough to satisfy the buyer and
> let it go. I just don't like it the same way some people don't like broccoli
> or cauliflower and I never will. :)

Well good for you if you don't like Little John Barleycorn. But I find
it ironic that you consider that cola beverages taste good. I always
considered them as probably what carbonated battery acid tastes like.

And the caffeine in them is also a drug, of which a lot of people take
too much of.

- 73 de Mike KB3EIA -

..... at this time sipping on small glass of Akvavit....

519. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 03:34:10 UTC
From: John - KD5YI <groups5munge@verizon.net>
Message-ID: <Si_xf.493$sq.34@trnddc01>
Source record: 65330

johannblake@yahoo.com wrote:
> I have a 2.4 Ghz transceiver circuit that is used in a mobile wireless
> application. The application runs from a watch battery so power is
> crucial. The device will only need to transmit up to 4 or 5 meters to
> its receiver. I need to know what kind of antenna to use. I read that a
> dipole is typical. My question are:
>
> 1 - what is the minimum length that this antenna can be?
> 2 - what is the minimum diameter that the antenna can be?
> 3 - can the antenna be etched on one side of a PCB (to avoid attaching
> a physical cable)?
> 4 - does the length / diameter of the antenna affect the power output?
> 5 - any manufacturers you know of that sell very small antennas for
> this application?
>
> What I need is the smallest antenna possible!
>
> Thank you for your insight.
> Johann Blake
>

Smallest possible? How about surface mount?

http://www.mouser.com
240-4311-115-00245

0 dBi, $4.68 in qty 1

John

520. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 06:23:23 UTC
From: johannblake@yahoo.com
Message-ID: <1137219803.308238.228690@f14g2000cwb.googlegroups.com>
Source record: 65331

I came across this as well after my posting. This looks to be a great solution.

Johann

521. Re: Questions about antennas for 2.4 Ghz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 09:40:08 UTC
From: Roger <Delete-Invallid.stuff.groups@tm.net>
Message-ID: <0nhhs1tf2baee39m9o45uj2dnhkc17esi2@4ax.com>
Source record: 65332

On 13 Jan 2006 22:23:23 -0800, johannblake@yahoo.com wrote:

>I came across this as well after my posting. This looks to be a great
>solution.
>

Came across what?

Roger (K8RI)

>Johann
Roger

522. Re: [question] current/voltage amplitude inducted in antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 10:48:28 UTC
From: Antey <antey@o2.pl>
Message-ID: <dqaktp$ig6$1@atlantis.news.tpi.pl>
Source record: 65333

> Are you simulating a receiving antenna or parasitic elements?
> The main wave in an ordinary transmitting dipole is conducted,
> not inducted.

I am simulating an amplifier :O) - and I just need a sensible
excitation for it; I figured out that described source can do it,
but I would like to know if I am right or not.

Best Regards,
Peter

523. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 12:12:23 UTC
From: Kev <kevcat@optunet.com.au>
Message-ID: <43c8eaa8$0$13318$afc38c87@news.optusnet.com.au>
Source record: 65334
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

news wrote:

> yes thanks glenn. I would like a copy of the circuit.
>
> email james_about@hotmail.com with the info please.
>
> Any thing you need also. I keep a fairly extensive collection of radio
> software and circuits.
>
> And gidday to Kev ....tanker wanker. private joke.
>
>

:)

Kev

524. Brain Teaser Practicality

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 16:08:00 UTC
From: "Wayne P. Muckleroy" <wayne3141592654@neo.rr.com>
Message-ID: <Al9yf.3163$tK4.2888@tornado.ohiordc.rr.com>
Source record: 65335

Question:
What is the real world effect on this antenna's performance if the
dimensions are calculated to the nearest inch?

Suggestion:
Use a rough graphical solution to come close to the ideal dimensions. Erect
the antenna and then make minor changes in conductor/feed-point dimensions
to minimize VSWR and maximize efficiency.

"Cecil Moore" <mycall@arrl.net> wrote in message
news:1Qxxf.8331$dW3.1056@newssvr21.news.prodigy.com...
> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
> Pole A
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> | \ Pole B
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>
> P.S. None of my math students can solve this problem.
> --
> 73, Cecil, http://www.qsl.net/w5dxp

525. Re: [question] current/voltage amplitude inducted in antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 16:09:42 UTC
From: richardharrison@webtv.net
Message-ID: <5543-43C92246-711@storefull-3256.bay.webtv.net>
Source record: 65336

Peter wrote:
"What amplitude can it be?"

A receiving antenna has a radiation resistance. The load which extracts most power is a conjugate match for the antenna. With radiation resistance perfectly matched to receiver input resistance, the radiation resistance becomes the Thevenin equivalent source resistance feeding an identical receiver input resistance. 1/2 the voltage induced into the receiving antenna is used to re-radiate energy received by the antenna. The other 1/2 appears across the receiver`s input resistance.

For a professional explanation of this topic, see Kraus` 3rd edition of "Antennas" page 32. "All about antennas at a glance".

Best regards, Richard Harrison, KB5WZI

526. Re: Any Such Coax Switch?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 16:23:26 UTC
From: "Wayne P. Muckleroy" <wayne3141592654@neo.rr.com>
Message-ID: <2A9yf.3199$tK4.535@tornado.ohiordc.rr.com>
Source record: 65337

Bird Electronic use to carry a manual transfer switch for 50 Ohms. They probably still carry it because they obsolete nothing. You may find one on E-bay. Go to the Bird web-site and get the model number.

http://www.bird-electronic.com/products/product.aspx?id=407

Wayne-
(KC8UIO)

"jimbo" <jimbo62@spamex.com> wrote in message
news:O9GdnbsyOPa6AVjeRVn-sQ@comcast.com...
>I have two, 2 meter radios, one in my basement shack and one in my computer
>room on the second floor. I have one 2 meter antenna located in the third
>floor attic. I would like a switch that would switch the antenna between
>the two radios and I want the radio that is not connected to the antenna to
>be connected to a dummy load.
>
> Maybe I haven't looked hard enough, but all of the switches I have found
> so far, switch multiple antennas to one radio and ground the unused
> antenna(s).
>
> Thanks for any help, jimbo

527. Re: Brain Teaser Practicality

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 16:39:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9P9yf.2822$nT6.247@newssvr27.news.prodigy.net>
Source record: 65338

Wayne P. Muckleroy wrote:
> Question:
> What is the real world effect on this antenna's performance if the
> dimensions are calculated to the nearest inch?
>
> Suggestion:
> Use a rough graphical solution to come close to the ideal dimensions. Erect
> the antenna and then make minor changes in conductor/feed-point dimensions
> to minimize VSWR and maximize efficiency.

Actually, it's a classical mathematics problem involving ladders.
Since Kurt N. Sterba uses ladders for antennas, it occurred to
me too post the problem as an antenna problem.
--
73, Cecil http://www.qsl.net/w5dxp

528. Re: Brain Teaser Practicality

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 18:34:15 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqbg76$n05$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65339

"Cecil Moore" wrote
> Actually, it's a classical mathematics problem involving ladders.
> Since Kurt N. Sterba uses ladders for antennas, it occurred to
> me too post the problem as an antenna problem.

==========

I first heard of the problem about 50 years back. It involved ladders in a passage-way leaning on two enclosing brick walls.

The solution involved a pair of simultaneous equations and Pythagorus' "sum of the squares on the hypotenuse, etc."

Pythagorus would have had little difficulty with it. He probably cribbed his ideas from the ancient Egyptians who built the perfect triangular pyramids using only copper tools several thousand years before.

We can do nothing but admire the ancient peoples who lifted themselves up with their own boot-straps. The Greeks, Egyptians, Babylonians, Sumerians, Persians, the peoples of North and South India, and, not the least, the Chinese.

Their descendents can teach us ill-educated westerners a lot. Instead of using guided weapons and threats of much worse, perhaps we should listen and take careful note.

The first essential is to get rid of Bush and his puppy-dog Blair.
Then severely regulate the oil, gas and energy corporations.

Reg.

529. Re: Brain Teaser Practicality

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 19:32:11 UTC
From: Dave <noone@nowhere.com>
Message-ID: <yOSdnYAgZrpYzFTenZ2dnUVZ_tOdnZ2d@crocker.com>
Source record: 65340

something tells me you missed the point... this is not a real antenna, it is purely a math puzzle and not something anyone would really want to build.

on the other hand, the accuracy needed for cutting wires or aluminum for antennas depends on the frequency and antenna design. some designs are rather forgiving, others very critical. and on 160m where you can be a foot or two off and not notice much change you want to be much more accurate on 70cm and you adjust microwave stuff down to small fractions of an inch.

"Wayne P. Muckleroy" <wayne3141592654@neo.rr.com> wrote in message news:Al9yf.3163$tK4.2888@tornado.ohiordc.rr.com...
> Question:
> What is the real world effect on this antenna's performance if the
> dimensions are calculated to the nearest inch?
>
> Suggestion:
> Use a rough graphical solution to come close to the ideal dimensions.
> Erect the antenna and then make minor changes in conductor/feed-point
> dimensions to minimize VSWR and maximize efficiency.
>
> "Cecil Moore" <mycall@arrl.net> wrote in message
> news:1Qxxf.8331$dW3.1056@newssvr21.news.prodigy.com...
>> Problem:
>> There's a rather strange antenna with two straight wire elements.
>> The two elements are supported by two non-conductive poles, Pole
>> A and Pole B of unequal lengths. The bottoms of the poles are at
>> ground level and the ground is flat.
>>
>> One straight 10 foot wire runs directly from the bottom of Pole
>> A to the top of Pole B. One straight 20 foot wire runs directly
>> from the bottom of Pole B to the top of Pole A. The feedpoint of
>> this strange antenna is where the wires intersect and that point
>> is exactly five feet above the ground. (The two wires form a
>> non-symetrical 'X' between the poles and the center of the 'X'
>> is exactly five feet above the ground.)
>>
>> Question: What are the heights of Pole A and Pole B, and
>> how far apart are the two poles?
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>>
>> P.S. None of my math students can solve this problem.
>> --
>> 73, Cecil, http://www.qsl.net/w5dxp
>
>
```

530. FS: Heathkit Manuals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 19:48:55 UTC
From: Richard Reese <reeser@gemair.com>
Message-ID: <9clis15i74n2k362ccco25fomq0nkr55h8@4ax.com>
Source record: 65341

If you need any Heathkit Manuals please visit my website at www.gemair.com/~reeser

73
Dick
WA4PLL

531. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 22:48:28 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <kIudnS7TlrEn4lTeRVn-iw@comcast.com>
Source record: 65342

All the math, excel, mathcad may be fine and fun. But, please tell me,
what is the feedpoint impedance on 20 meters and does it have a low
angle of radiation??

Cecil Moore wrote:

> Problem:
> There's a rather strange antenna with two straight wire elements.
> The two elements are supported by two non-conductive poles, Pole
> A and Pole B of unequal lengths. The bottoms of the poles are at
> ground level and the ground is flat.
>
> One straight 10 foot wire runs directly from the bottom of Pole
> A to the top of Pole B. One straight 20 foot wire runs directly
> from the bottom of Pole B to the top of Pole A. The feedpoint of
> this strange antenna is where the wires intersect and that point
> is exactly five feet above the ground. (The two wires form a
> non-symetrical 'X' between the poles and the center of the 'X'
> is exactly five feet above the ground.)
>
> Question: What are the heights of Pole A and Pole B, and
> how far apart are the two poles?
>
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>
> P.S. None of my math students can solve this problem.

532. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-14 23:49:10 UTC
From: Glenn McAllister <"(my_callsign)"@orcon.net.nz>
Message-ID: <43C98DF6.2958@orcon.net.nz>
Source record: 65343
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Glenn McAllister wrote:
> (snip)
>
> If/when I find the dox, I'll get back to you. Let me know how you
> progress.
>
> Glenn ZL2TLD

Dox found, photographed (no scanner) and emailed to James, Al and Gary.

If anyone else would like it, email me with a VALID email address and
I'll send. (that's pointed at you, al! :-))
It's about 2.5MB zipped. Anyone got some space to host it?

I'll scan it properly when I find someone locally with a flatbed
scanner.

My email address is my callsign at orcon dot net dot enn zed

de Glenn ZL2TLD

533. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 01:08:48 UTC
From: Ken Taylor <ken@home.nz>
Message-ID: <Wfhyf.14925$vH5.795605@news.xtra.co.nz>
Source record: 65344
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

"Glenn McAllister" <"(my_callsign)"@orcon.net.nz> wrote in message
news:43C98DF6.2958@orcon.net.nz...
> Glenn McAllister wrote:
> > (snip)
> >
> > If/when I find the dox, I'll get back to you. Let me know how you
> > progress.
> >
> > Glenn ZL2TLD
>
> Dox found, photographed (no scanner) and emailed to James, Al and Gary.
>
> If anyone else would like it, email me with a VALID email address and
> I'll send. (that's pointed at you, al! :-))
> It's about 2.5MB zipped. Anyone got some space to host it?
>
> I'll scan it properly when I find someone locally with a flatbed
> scanner.
>
> My email address is my callsign at orcon dot net dot enn zed
>
>
> de Glenn ZL2TLD

Whereabouts are you Glenn? I'm in Auckland - have scanner.

Ken

534. Re: Dick Smith Radio Direction Finder

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 04:09:48 UTC
From: Glenn McAllister <"(callsign)"@orcon.net.nz>
Message-ID: <43C9CB0C.48AA@orcon.net.nz>
Source record: 65345
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Ken Taylor wrote:
> (snip)
> Whereabouts are you Glenn? I'm in Auckland - have scanner.
>
> Ken
Masterton. Email me with your postal address
(And a valid email address :-))
and I'll post it to you if I can't find a scanner locally.

de Glenn ZL2TLD
(callsign) at orcon dot net dot enn zed

535. Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 06:01:16 UTC
From: tekmanx@gmail.com
Message-ID: <1137304876.730884.173780@o13g2000cwo.googlegroups.com>
Source record: 65346

Hey guys, I don' t have a design ready to post yet, but my question is.. How high should my tower be for my vertical sector wifi antenna? I'm currently still undecided on which antenna to get, but my radio is gonna be a 400mw mini-pci nic and the antenna is going to be a 17-24db vertical sector antenna. I'm looking to cover distances of 4-15miles.

536. Re: Brain Teaser

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 07:27:04 UTC
From: John Hancock <jhancock@nospam.mn.rr.com>
Message-ID: <cPmyf.32930$0e.2505@tornado.rdc-kc.rr.com>
Source record: 65347

test

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dq954j$g73$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com...
> The trouble with pure maths programs is worrying about whether the
> answer is the right one from amongst the great variety of other
> possible "equally correct" answers.
>
> For confidence in results, it is necessary to know EXACTLY how a
> program deals with the problem it is presented with. Generally this
> is unknown. Users are seldom mathematicians. Otherwise they would
> not be using the program.
> ....
> Reg.
>
>
>

537. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 10:26:08 UTC
From: Zoli Pitman HA1AG <ha1ag@yahoo.com>
Message-ID: <43ca2341$0$71443$dbd43001@news.wanadoo.nl>
Source record: 65348

tekmanx@gmail.com wrote:
> Hey guys, I don' t have a design ready to post yet, but my question
> is.. How high should my tower be for my vertical sector wifi antenna?

What you see is what you cover

> I'm currently still undecided on which antenna to get

It depends on lot of factors. As a (over) simplistic method use LoS
equation, add some margin for fading and calculate link balance to get
ERP figures. From ERP you can find out the antenna you need for your
feeder losses.

GL,

zoli ha1ag

538. Re: FS: Heathkit Manuals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 10:34:01 UTC
From: Zoli Pitman HA1AG <ha1ag@yahoo.com>
Message-ID: <43ca251a$0$36837$dbd43001@news.wanadoo.nl>
Source record: 65349

>
> If you need any Heathkit Manuals please visit my website at xxx.xxx.com/~reeser
>
> 73 Dick WA4PLL

what a cheap advertiser...

good that these stuff is available from half a dozen sites for free...

Zoli HA1AG

539. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 14:35:39 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <r63q93-0h.ln1@p400bob.personal.cox.net>
Source record: 65350

Generally speaking you should have an unobstructed line of site to the other end of the link. Think of WiFi as being a light beam.

Work out the path loss based on the basic distance formula and plug your power, losses and RX sensitivity in to determine your margin and thus max range. Radiomobile and/or UKWtools can be used for this and some allowance for terrain as well.

Cheers Bob VK2YQA

tekmanx@gmail.com wrote:

> is.. How high should my tower be for my vertical sector wifi antenna?

540. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 16:38:41 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137343121.779638.21450@z14g2000cwz.googlegroups.com>
Source record: 65351

Also, I heard 802.11g sucks outdoors. This true? And would you guys say
my 400mw radio is overkill for 4-10mile shot?

541. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 17:20:08 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <kf0ls15515k0qhdh6ds6vd6a8c5pqr75md@4ax.com>
Source record: 65352

On 15 Jan 2006 08:38:41 -0800, "Tekmanx" <tekmanx@gmail.com> wrote:

>Also, I heard 802.11g sucks outdoors. This true? And would you guys say
>my 400mw radio is overkill for 4-10mile shot?

Hi OM,

It, or any link, only sucks as a function of what is called multipath.
This means that reflections combine at the receiver to blur the
signal. For conventional modes this is at worst obnoxious. For
digital it can mean total bit loss. In all practicality it translates
to high BER (bit error rate) and low information bandwidth due to
repeated packets being needed. The solution is not more power because
the problem will still be the same, only louder (so to speak).

Instead, the receiver antenna should have the gain so as to exclude
the signals coming from other directions. This exclusion is a
property of antenna gain, it is like cupping your ear to hear better,
there is not more signal to be had, you are merely excluding
distractions and focusing what is available.

400 mW in the clear and visible to a receiver is more than enough.
Your second problem is that you may not have 400 mW at the end of the
transmission line, at the antenna, because of the enormous loss in the
line if it is very long. That has already been discussed by Bobï¿½.

73's
Richard Clark, KB7QHC

542. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 18:52:14 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <v7iq93-ht.ln1@p400bob.personal.cox.net>
Source record: 65353

In addition to Richards comments

As a guide I use to run two spread spectrum links. One on 2.4GHz over about 10km and another on 5.6Ghz over 8km.

The 5.6GHz link was one of those Cisco patch panel things with 30dBm EIRP. The RF power was about 8dBm. We had 56MB/sec about 90% of the time. (Including the BER) (keeping in mind that this is aggregate)

The 2.4GHz link was initially setup wrongly. There is a parameter one has to set that defines the max distance of the link I think to reduce packet retries and collisions. When it wasnt set the rate was a real bad and flakey 1MB/sec but when fixed 11Mb/sec was good about 80% of the time (incl BER)

What eventually killed the 2.4GHz link was mainly other users on the same freq. The radio design didnt seem to allow it to hop away from interfering signals. A cold power boot often resolved the issue as it chose another clearer freq. We eventually dropped it to 2MB/sec with about 50% reliability. We didnt really have any major multipath problems that were noted in the design phase. We did however have a building go up in the path and for a while were firing between two concrete floors! (We moved one end later)

We used a 2 metre gridpack horiz polarization at each end (to avoid some user interference). One end had a 16m run of LMR400, the other about a 12m run. I dont remember the calcs/margin we did off hand, sorry. We didnt however exceed the 30dBm EIRP legal limit. (The company had a very good standing with the ACA/ACMA so we were kind of pedantic about doing it right)

Both links were kind of high point to high point accross Sydney. ie There was a large series of valleys between each site.

Hope you find this helpful

Cheers Bob

Tekmanx wrote:
>
> Also, I heard 802.11g sucks outdoors. This true? And would you guys say
> my 400mw radio is overkill for 4-10mile shot?
>

543. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 19:20:53 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137352853.746254.69170@f14g2000cwb.googlegroups.com>
Source record: 65354

So you're saying that anyting less than 400mw on the other end will be
useless?

544. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 19:49:19 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <3i9ls1h10h0l2v0k33fe4qase7ts1hjhnn@4ax.com>
Source record: 65355

On 15 Jan 2006 11:20:53 -0800, "Tekmanx" <tekmanx@gmail.com> wrote:
>So you're saying that anyting less than 400mw on the other end will be
>useless?
No, it only takes microwatts at the receiver to do the job. Start at
the receiver, not the transmitter. Ham radios with only a Watt or two
talk to the Space Shuttle (hundreds of miles) without too much
trouble.

73's
Richard Clark, KB7QHC

545. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 19:56:12 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137354972.920090.147520@g44g2000cwa.googlegroups.com>
Source record: 65356

So what is it you would say determines wither or not my signal will be received on the other end? I mean with just a regular soho wifi access point in open space you can only communicate within a couple hundred feet (That's open space). If gain/wattage isn't so important when we're talking distance.. what is? Line of site? Are you saying that that I can shoot my 30mw signal from my soho access point couple of miles?

546. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 20:44:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <5ocls1hnbn0kr8fqraiudv2hou5obghme4@4ax.com>
Source record: 65357

On 15 Jan 2006 11:56:12 -0800, "Tekmanx" <tekmanx@gmail.com> wrote:

>So what is it you would say determines wither or not my signal will be
>received on the other end? I mean with just a regular soho wifi access
>point in open space you can only communicate within a couple hundred
>feet (That's open space). If gain/wattage isn't so important when we're
>talking distance.. what is? Line of site? Are you saying that that I
>can shoot my 30mw signal from my soho access point couple of miles?

Ah!

Only 30 mW? So you were expecting the antenna to boost it to 400
without any loss of the 30 getting to the antenna?

Why it seems limited is in exactly the problem described as multipath.
All those echoes are roughly the same strength because you are sitting
down low near many reflecting surfaces. "Open space," is not always
so open unless you are sitting in a pasture. Simply because there are
no obstructions between you and your destination does not mean the
signal is not traveling by many, many different paths - in fact, it is
guaranteed.

As I said, this is more a receive problem.

73's
Richard Clark, KB7QHC

547. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:05:08 UTC
From: dplatt@radagast.org
Message-ID: <11sle84r4si5g96@corp.supernews.com>
Source record: 65358

>So what is it you would say determines wither or not my signal will be
>received on the other end? I mean with just a regular soho wifi access
>point in open space you can only communicate within a couple hundred
>feet (That's open space). If gain/wattage isn't so important when we're
>talking distance.. what is? Line of site? Are you saying that that I
>can shoot my 30mw signal from my soho access point couple of miles?

I've spoken with a guy who has set up a number of reliable point-to-point links in the Sacramento valley, using standard unamplified off-the-shelf SOHO-type access points and/or PCI cards or USB dongles. He said he achieves reliable performance, with a good margin of signal strength to handle rain fade, etc., with no amplifiers, over distances of as much as 5 miles.

The key to doing this are a clear line of sight, an antenna with high directional gain at each end of the link, and careful aiming. Getting the radio right up at the antenna (rather than at the end of a length of coax) is also beneficial.

The carefully-aimed highly-directional antennas give you several advantages, over a standard SOHO omni antennas. The directionality increases the effective radiated power of the transmitter (50 milliwatts through a 20 dBi antenna is equivalent to 5 watts isotropic), it increases the receiver's effective sensitivity by the same degree, and it makes the receiver _less_ sensitive to interference arriving from other angles (e.g. competing transmitters).

Also, with proper choice of antenna, you can select the signal's polarization angle. Since most home and business access points seem to use vertically-oriented antennas (and thus a vertically polarized signal) you can reduce interference problems by using point-to-point antennas which are horizontally polarized.

The guy I spoke with was not complementary about the idea of trying to "blast" signals through by using high-power transmitters or amplifiers, and blanketing a large area with the signal.

You can buy wire-dish parabolic antennas for the 2.4-gig ISM radio band quite easily. I think I've seen 'em advertised as having 15 to 19 dBi of gain. One of these at each end of the link would be a good place to start.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will

boycott any company which has the gall to send me such ads!

548. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:06:17 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137359176.978575.114950@f14g2000cwb.googlegroups.com>
Source record: 65359

Ok, I 'think' I understand now :/

549. RadioPirates Forum Check It out

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:34:54 UTC
From: DJboutit <Recordking@Hotmail.com>
Message-ID: <2ezyf.16077$SD1.2376@tornado.texas.rr.com>
Source record: 65360

A community for Pirate Radio enthusiasts to discuse this great hobby and
too meet other people interested in Pirate Radio
http://radiopirates.ny-cp.net/index.php

550. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:44:51 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <-7CdnUWMuPLMX1fenZ2dnUVZ_tmdnZ2d@comcast.com>
Source record: 65361

Tekmanx wrote:
> Also, I heard 802.11g sucks outdoors. This true? And would you guys say
> my 400mw radio is overkill for 4-10mile shot?
>

You seem to be getting too much information and not answers to your questions.

400 milliwatts is plenty of power. The performance of your system will be governed by two simple factors: how high are the antennas; and, how sensitive is the receiver?

For ten miles your antenna height above average ground should be close to 100 feet. For seventeen miles you need an antenna height of close to 300 feet. I suspect both heights are excessive for your application. Also, the cables connecting your transmitter to the antenna have losses. So, mounting the transmitter at the top of the antenna would be preferred. An alternative to the 100 foot antenna would be 70 feet antennas, one at the transmitter and one at the receiver.

Receiver sensitivity is unknown. I regularly communicate 20+ miles with 500 milliwatts from a ham radio walkie talkie. [the receiver is located on top of a mountain] Most communiation grade radios can receive a signal as small as 0.000000000000002 watts. [one millionth of a volt]. So, you can see why I say 400 milliwatts is plenty. So, the receiver you use should have a moderately good sensitivity 5 microvolts or smaller.

Over relatively flat terrain, with very modest antenna [20 feet high] a four mile circuit should be possible. Longer paths will require spending $$$.

551. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:51:04 UTC
From: gsm@mendelson.com
Message-ID: <slrndslgp7.c60.gsm@cable.mendelson.com>
Source record: 65362

Dave Platt wrote:
> I've spoken with a guy who has set up a number of reliable
> point-to-point links in the Sacramento valley, using standard
> unamplified off-the-shelf SOHO-type access points and/or PCI cards or
> USB dongles. He said he achieves reliable performance, with a good
> margin of signal strength to handle rain fade, etc., with no
> amplifiers, over distances of as much as 5 miles.

It's important to point out that using these extreme high gain antennas
with out a license is illegal in the U.S. The guy that invented the
"pringles can" antenna was an FBI agent so he was not prosecuted, but
if he had been an average citizen the FCC would have come after him.

Then the question becomes which if any of the 14 WiFi channels is
actually in the 2.4gHz ham band.

Here in Israel it's even worse. WiFi and terrestrial 2.4gHz ham activity
is limited to 100mw EIRP. If you use a gain antenna, you must reduce
the transmitter power proportionaly.

Geoff.
--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
The trouble with being a futurist is that when people get around to believing
you, it's too late. We lost. Google 2,000,000:Hams 0.

552. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 21:56:32 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137362192.681936.290000@f14g2000cwb.googlegroups.com>
Source record: 65363

Thank you so much Amos! I was aiming for a 40feet-ish tower. Tripod base with an adjustable inner tubing which is where the antenna will be placed on at the top. So basically I was thinking 20ft tall tripod with cup-like guides allowing me to adjust the inner 30foot long inner tubing/pole up to 20feet on top of the tripod giving a total high of 40ft(10feet of the inner pole will sit inside the tripod). I'm currently in the process of drawing up a diagram to show a local metal welder, but that's my basic idea right now.

553. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 23:07:48 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137366468.534583.50210@o13g2000cwo.googlegroups.com>
Source record: 65364

Here's my first draft. -> http://tekmanx.serveftp.com/~tekmanx/pole.gif

554. Re: FS: Heathkit Manuals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 23:25:58 UTC
From: Reinhard Zwirner <reinhard_zwirner@web.de>
Message-ID: <4303qhF1kq9u9U1@individual.net>
Source record: 65365

Zoli Pitman HA1AG schrieb:
>
> >
> > If you need any Heathkit Manuals please visit my website at xxx.xxx.com/~reeser
> >
> > 73 Dick WA4PLL
>
> what a cheap advertiser...
>
> good that these stuff is available from half a dozen sites for free...

Where?

Very interested

73, Reinhard DH0OAI

555. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-15 23:30:12 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <8WAyf.9841$Di.6629@trnddc06>
Source record: 65366

"Tekmanx" <tekmanx@gmail.com> wrote in message
news:1137366468.534583.50210@o13g2000cwo.googlegroups.com...
> Here's my first draft. -> http://tekmanx.serveftp.com/~tekmanx/pole.gif
>

Hi Tek

Your ambition impresses me. 40 feet seems awful high unless those
support legs are anchored well.
I have a little WiFi site that uses surplus satellite TV dishes with
BiQuad illuminators. I have chosen to locate the Access Point at the
transmitting antenna in an effort to minimize the loss to the coax to the
computer. I have a Bridge at the receiving computer end. CAT-5 cable
takes the signals to the computers.

Jerry

556. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 00:15:04 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <955r93-dc1.ln1@p400bob.personal.cox.net>
Source record: 65369

Hi Amos

From memory the Cisco 5.6GHz box had a path prediction sensitivy number of about -87dBm. ie full speed with that input to the RX. I suspect that at a lower data rates and extra 10dB might be a good number to use. I have seen that larger microwave system manufacturers do publish their specs so look it up for the equipment that is going to be used.

FM rcvs on 2M can often go to about -117dBm. An SSB rcvr on 2m with a preamp hits thermal noise at about -141dBm. This also needs a good human ear.

Cheers Bob VK2YQA

Amos Keag wrote:
> Receiver sensitivity is unknown. I regularly communicate 20+ miles with
> 500 milliwatts from a ham radio walkie talkie. [the receiver is located
> on top of a mountain] Most communiation grade radios can receive a
> signal as small as 0.000000000000002 watts. [one millionth of a volt].
> So, you can see why I say 400 milliwatts is plenty. So, the receiver you
> use should have a moderately good sensitivity 5 microvolts or smaller.

557. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 00:15:42 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137370542.827962.123250@f14g2000cwb.googlegroups.com>
Source record: 65367

Well I plan to have a 5-6' squared concrete slab inwhich the tripod legs will be bolted down to. The access point will sit in a outdoor enclosure prolly 2-3feet away from the antenna on the pole. The inner tubing will come down for easy access making the total height of the tower 30ft. There's just soo much variables involved that determine if this thing works properly.. so I'm planning to overshoot in hopes that I will get it just right.

Here's the access point :
http://www.wisp-router.com/product_info.php?products_id=450&osCsid=ded957eab06d3d213602459103e1168b

And the radio:
http://www.wisp-router.com/product_info.php?products_id=399

Plan to use a based OS on this setup.

558. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 00:41:42 UTC
From: dplatt@radagast.org
Message-ID: <11slqu6rrtomu45@corp.supernews.com>
Source record: 65368

In article <slrndslgp7.c60.gsm@cable.mendelson.com>,
Geoffrey S. Mendelson <gsm@mendelson.com> wrote:

>Dave Platt wrote:
>> I've spoken with a guy who has set up a number of reliable
>> point-to-point links in the Sacramento valley, using standard
>> unamplified off-the-shelf SOHO-type access points and/or PCI cards or
>> USB dongles. He said he achieves reliable performance, with a good
>> margin of signal strength to handle rain fade, etc., with no
>> amplifiers, over distances of as much as 5 miles.
>
>It's important to point out that using these extreme high gain antennas
>with out a license is illegal in the U.S. The guy that invented the
>"pringles can" antenna was an FBI agent so he was not prosecuted, but
>if he had been an average citizen the FCC would have come after him.

Not strictly true, although your point is well taken.

It's true that WiFi equipment must be tested and certificated as a
system. Using an off-the-shelf gain antenna, cabled to an
off-the-shelf WiFi AP/card, will almost certainly void the
certification, and then using the device becomes technically illegal
under Part 15, and unless you have a license for another service which
allows it (e.g. Part 97 ham license) you could be cited for it.

There are commercial WiFi radios whose manufacturers have tested and
certificated them with such high-gain antenna systems, specifically
for point-to-point connections. If you buy one of their radios and
one of their antennas, you can use 'em within the Part 15 rules, and
you'll be fully legal.

It's not so much the antenna itself... it's the certification status
of the antenna/radio system, as well as the EIRP.

>Then the question becomes which if any of the 14 WiFi channels is
>actually in the 2.4gHz ham band.

Check the ARRL's "multi-media wireless" interest group pages for
details on this. My recollection is that there are one or two 802.11b
channels whose power spectra fall within the ham-band 2.4-gig
allocation and also fall outside of the ham 2.4-gig "weak signal"
bandplan segments.

>Here in Israel it's even worse. WiFi and terrestrial 2.4gHz ham activity
>is limited to 100mw EIRP. If you use a gain antenna, you must reduce
>the transmitter power proportionaly.

There's a similar proviso here in the U.S., but for point-to-point links it's not as severe as that. If I recall properly, for a point-to-point link, once you exceed 1 watt EIRP, you have to subtract one dB of transmitter power for each additional 3 dB of antenna gain you throw into the equation.

--
pDave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will boycott any company which has the gall to send me such ads!

559. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 01:09:21 UTC
From: Tekmanx <tekmanx@gmail.com>
Message-ID: <1137373761.244683.306070@f14g2000cwb.googlegroups.com>
Source record: 65370

Uh.. I'm not in the US. I'm in the Bahamas. Totally different when it comes to this stuff :D

560. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 02:44:37 UTC
From: richardharrison@webtv.net
Message-ID: <13516-43CB0895-66@storefull-3252.bay.webtv.net>
Source record: 65371

Techmanx wrote:
"How high should my tower be for my vertical sector with antenna?"

Assuming line-of-sight is needed, the distance in miles to the horizon over smooth earth is: the square root of twice the antenna slevation in feet. You may want to add to the calculated height to allow first Fresnel zone clearance at the path grazing point.

Best regards, Richard Harrison, KB5WZI

561. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 03:30:05 UTC
From: richardharrison@webtv.net
Message-ID: <5543-43CB133D-1183@storefull-3256.bay.webtv.net>
Source record: 65372

Bob Bob wrote:
"Work out the path loss based on the basic distance formula and plug in your power losses, and RX sensitivity to determine your margin and max range."

Add in the antenna gains. You`ll need them to offset path and transmission losses.

Margins involve choices. Performance and reliability depend on those choices. I often choose to imagine the earth with only 2/3 its actual diameter for my path profile. Then I use 0.6 of the first Fresnel zone for added clearance at the path grazing point. You need 30 or 40 dB excess signal into the receiver under normal conditions to make the receiver very quiet and to allow margin for path fades if you need high performance and freedom from fades.

Path loss is computed from frequency squared times distance squared with constants as needed for the system you are working with. Someone has usually worked up a chart of path loss versus distance for the frequency you are working with. Every time distance doubles, loss increases about 6 dB.

Best regards, Richard Harrison. KB5WZI

562. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 04:54:28 UTC
From: richardharrison@webtv.net
Message-ID: <20330-43CB2704-1035@storefull-3251.bay.webtv.net>
Source record: 65373

Telemax wrote:
"And would you guys say my 400 mw radio is overkill for 4 - 10 mile shot?"

Depends on the whole system. The gains and losses must be totalled to check for satisfaction.

Industrial microwave I put in almost 50 years ago was limited by the klystrons available at reasonable cost at the time. As I recall, the power was 1-watt or +30 dBm. At 6 GHz, the wavelength is only about 1 inch, so plenty of antenna gain was readily available. 6-ft parabolas were common then and may have been a good cost to benefit trade off. Their gain was near 38 dB at 6 GHz. We tried to limit our path to about 25 miles for reliability and the cost of radio towers. Here is how our path might add up:

Free space loss: -140 dB
Antenna Gain (2ea): + 77 dB
Transmit power: + 30 dBm
Misc. loss (2 ea): - 5 dB

Received carrier pwr: - 38 dBm

A receiver sensitivity
for a multichannel RCVR: -80 dBm
would give us a fade margin of: 42 dB.

How would your system add up?

Best regards, Richard Harrison, KB5WZI

563. Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 16:58:01 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <Pt6dnVUTrbcKTVbeRVn-ig@comcast.com>
Source record: 65374

Hello:

The more I read up on this subject, the more confused I get.
Have some pretty basic questions on lightning protectors, if anyone has a spare minute or two.
Would sure apprerciate any clarifications on the following points which I am really confused on.

Will be putting up a simple receive only antenna once it warms up a bit around here; probably a simple Inverted-L type, most likely the PAR EFL-SWL

Have been thinking about incorporating a lightning arrestor into the antenna system Again, this is a receive only application.

The vertical leg of the antenna will terminate in the PAR Balun, which will be pretty close to ground level. I will have a ground bar at that point to which
the Balun ground(s) will be connected.

From the Balun to the radio will be coax.

Looking at the Polyphaser in line coax unit (dc blocked), and also the ICE 300 series units.

Questions:

a. For either unit, is the arrestor placed between the Balun and the antenna, or between the Balun and the radio ? Why ?

b. The Polyphaser unit apparently, when triggered, shunts the charge (only) to the coax shield. The only path to ground would then be up to the radio, thru the
chassis, and then to the AC power ground.

Or, I guess, possibly back the other way via the Balun's ground ? Or both ?
I would also image that the Balun's windings would probably blow too quickly to truly shunt any pulse to its ground ?

There doesn't seem to be any separate ground lug, like the ICE units have from their pictures.

I'm a real novice with this lightning protection stuff, so I am probably missing something, particularly with the Polyphaser shunting-to-the-shield-only approach which
doesn't seem too great regarding how an adequate RF ground is reached for any
diverted strike/pulse.

What am I missing or not considering with the Polyphaser approach ?
Thoughts on ?

c. Any opinions on the Polyphaser vs. the ICE units for a receiving only application ?

Much thanks,
Bob

564. adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 19:59:50 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1137441590.573885.240610@o13g2000cwo.googlegroups.com>
Source record: 65375

Hello Antenna "lovers",
It's been a cold winter so far. I have to plan my
spring/good weather,outside stuff now. I am thinking of adding more
length to my linear-loaded,140ft. dipole. I figured that the antenna
now is 70ft. per side. I been "playing" with the thought of adding
"about,or around",
54ft. to EACH side. These additions to the basic antenna would be
"hooked" about 90deg. to
the plane of the 70ft. side. I've looked at the "double-bazooka"
design,and think that this might get me better results on the lower
bands. I probabally should have just started with a
"full halfwave dipole" for 160m, and then just "hooked" the ends to fit
my yard.
The antenna has a feedpoint up at 55ft. with the ends
at 15ft. It's feed with 450ohm ladderline,to a 4/1 balun,and then good
grade coax. Still working on "that" coax length. I'm needing
50ft.,and I realize that it's length is needing adjustment. I trying a
1/1 balun out tonight. The length of the L.L. is 80ft. Will try 62 to
65ft. when weather changes.
My tuner WILL match the set up now; but it doesn't work as expected.
THE age-old,question; " How can I FIT a BIG,160m antenna INTO a
small yard ? ?

Thanks,

Paladin

565. Re: Newbie Questions On Receiving Only Antenna Installation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 20:11:33 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqgulk$966$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65226

Rob, you are unnecesarily complicating matters.

Either you can have lightning strikes in the vicinity of your antenna
or you can have a direct antenna lightning strike.

You can completely separate antenna design from the effects of
lightning. Just erect your antenna according to required radiating and
receiving properties. Inverted-L's and dipoles are simple enough.

If you expect lightning strikes in the vicinity then all you can do is
place a lighning arrestor in the coaxial feedline. Or from each of the
wires of a twin, balanced feedline down to ground. In the case of a
nearby lightning strike, this can do much to protect your radio
equipment but will not guarantee complete protection.

In the case of a direct lightning strike on the antenna there's
nothing you could have done to prevent it. Absolutely anything can
happen to your antenna, equipment, or anything else in your premises.
Including yourseslf. Just assess the extensive damage and inform your
insurance company.

On the other hand, don't completely disregard the hints and tips you
may receive from other conributors to your query on this newsgroup.
But it's all a matter of probability and chance.

Reg.

566. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 20:19:25 UTC
From: mcalhoun@ksu.edu
Message-ID: <dqgv4d$lml@unix1.cc.ksu.edu>
Source record: 65227

>Also, I heard 802.11g sucks outdoors. This true? And would you guys say
>my 400mw radio is overkill for 4-10mile shot?

Wasn't an article about long-range ham-band radio via 802.11 in the
Tennessee (?) Valley printed in QST a few months ago?

--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

567. Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 21:01:25 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43cc00e3@fidonet.org>
Source record: 65228

"Robert11" bravely wrote to "All" (16 Jan 06 11:58:01)
--- on the heady topic of "Lightning Arrestor Questions"

A wire antenna will be instantly vaporised when directly struck by
lightning so the point is moot: you want to protect the equipment
inside, and the house inhabitants.

Asimov

Ro> From: "Robert11" <rgsros@notme.com>
Ro> Xref: core-easynews rec.radio.amateur.antenna:222762

Ro> Hello:

Ro> The more I read up on this subject, the more confused I get.
Ro> Have some pretty basic questions on lightning protectors, if anyone
Ro> has a spare minute or two.
Ro> Would sure apprerciate any clarifications on the following points
Ro> which I am really confused on.
[,,,]

568. Re: Homemade Antenna Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 21:06:20 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <OLOdnbhAiOlXI1HeRVn-hA@comcast.com>
Source record: 65229

Tekmanx wrote:
> Here's my first draft. -> http://tekmanx.serveftp.com/~tekmanx/pole.gif
>

40 feet should be reliable line of sight for 6 +/- miles assuming ground
base antenna [6 +/- feet] at receiving end.

569. Re: Speaking of A.M. reception

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 21:08:54 UTC
From: hossdaddy <topdog@woofer.com>
Message-ID: <Vb0zf.3901$w72.1438@bignews4.bellsouth.net>
Source record: 65243

Hi Bill,

You might actually be right. I think that's what they are trying to do to hams with the possibility of BPL.

I think that AM (as it is) should stay that way FOREVER. I am not opposed to these stations using a parallel form of digital broadcasting (IBOC?) but to turn the AM-DSB transmitters off I think would be a tragedy. It is the only form or radio that can be easily demodulated. A grandfather can sit down with his grandson, a bunch of wire, an oatmeal box, and a few other cheap components and in a few hours have a working (and demonstratable) radio - FREE RADIO - and discounting lightning it is 100% safe too! It's that kind of thing that got me into the hobby - and with the numbers of licensees dwindling and our RF bandwidth at stake it is high time that we get the next generation interested.

73!
Paul
KD4GNU

<noway@nohow.com> wrote in message news:dld0qk02fmo@enews1.newsguy.com...
>
>
> On 15-Nov-2005, "Earl Needham" <munged@3lefties.com> wrote:
>
> > Getting the standard changed to SSB would be a great start, but
it'll
> > never happen.
> >
> > 7 3
> > Earl
> > KD5XB
>
>
> ~~~~~~
>
> Even better would be to eliminate all HF broadcasting and move it to UHF
FM.
> That "might" happen, but not soon.
>
> 73, Bill W6WRT

570. Re: Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 21:32:17 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <a5SdnR54pJtCjVHeRVn-sw@comcast.com>
Source record: 65230

Robert11 wrote:

> Hello:
>
> The more I read up on this subject, the more confused I get.

SNIPPED

> Questions:
>
> a. For either unit, is the arrestor placed between the Balun and the
> antenna, or between the Balun and the radio ? Why ?

First, the comment in another response regarding direct strike is mostly valid. No arrestor will protect from direct strike. [up to 100,000 amperes in less than 1 microsecond, with a 20,000 volt per meter E field.]

Second, for near strike, the arrestor should be installed depending on arrestor design. For coax based designs installation should be between balun and radio. For open wire design it should be installed at the wire to balun interface. Near strike is a non precise technical term. For near strike in the 10,000 E field zone the arrestor probably won't provide the protection you seek. For the 1,000 E field zone you should get some protection.

Why? When the arrestor ignites, fires, actuates there still is a voltage across the arrestor. This is the net voltage from the plasma in the spark gap or in the ionized internal gasses. This net voltage transient has a power density that extends from BC/MF [<160 meters] to the HF/VHF boundary around 30 MHz. It is a broadband pulse. The question is how much voltage can the radio be exposed to without damage?

>
> b. The Polyphaser unit apparently, when triggered, shunts the charge (only)
> to the coax shield. The only path to ground would then be up to the radio,
> thru the
> chassis, and then to the AC power ground.
>
> Or, I guess, possibly back the other way via the Balun's ground ? Or both ?
> I would also image that the Balun's windings would probably blow too quickly
> to truly shunt any pulse to its ground ?
>
> There doesn't seem to be any separate ground lug, like the ICE units
> have from their pictures.
>
> I'm a real novice with this lightning protection stuff, so I am

> probably missing something, particularly with the Polyphaser
> shunting-to-the-shield-only approach which
> doesn't seem too great regarding how an adequate RF ground is reached for
> any
> diverted strike/pulse.
>
> What am I missing or not considering with the Polyphaser approach ?
> Thoughts on ?
>
> c. Any opinions on the Polyphaser vs. the ICE units for a receiving only
> application ?
>
> Much thanks,
> Bob
>

The best solution is to disconnect the antenna and move it away from the radio when not in use.!!

I'm a retired Aerospace/Electrical engineer who spent years designing for lightning strikes both direct and near strikes. My station is 100% conforming to electrical code and lightning mitigation techniques. Last July, a near strike lightning pulse caused the ground fault interruptors for the pool, the bathroom and the kitchen to function. The circuit breakers in the service panel for the basement power distribution opened, and the power transformer on the utility pole about 1/2 mile away exploded. I lost my ICOM 756 ProII which was disconnected from the power lines, notebook computer, USB damage in a second computer on the in-house LAN, and one telephone. The ICOM 756 Pro II was disconnected from the antennas, and the lightning surge protectors did not actuate. A post fault failure analysis indicated that there was a surge in the utility power neutral to ground. The entire neighborhood of over 50 homes suffered some degree of damage. It is estimated by the power utility that the strike was 1/2 mile away.

My ICOM 746, my Kenwood TM-G707, and the numerous power supplies suffered NO damage. Go Figure :-)

CONCLUSION: Lightning finds way to kill electronics no matter how well the equipment is installed.

>
>
>

571. Re: adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 22:03:48 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <8LUyf.755$NS6.77@newssvr30.news.prodigy.com>
Source record: 65231

Paladin,
Fractals? ... Can't believe I said that.
'Doc

572. Re: adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 23:04:28 UTC
From: nm5k@wt.net
Message-ID: <1137452668.807005.20960@g14g2000cwa.googlegroups.com>
Source record: 65232

THE age-old,question; " How can I FIT a BIG,160m antenna INTO a
small yard ? ? .....

In as most sneaky manner as possible. You could try adding to the
ends. The usual double bazooka is made mostly from coax, and
actually has more loss than using plain wire. The loss gives it the
wider bandwidth. There is no free lunch.. :/ I'm on a regular city
lot, and I've been able to fit in inv L's, and also have a "Z" dipole
that I can use. At the momen, I'm now running a 80 turnstile, and
40 dipole on one coax. On 160, I short the shield to center pin,
and load it as a top loaded vertical. "four 60 ft top loading wires,
and appx 42 ft height of the feedline". For all around use, it's
my best antenna, but sometimes the Z dipole beats it for NVIS
stuff. If you can fit a 80 dipole, you can probably fit a full size
160m Z dipole. Inv L's work pretty well, but I recently took mine
down as it was redundant, and the top loaded worked better most
times. I tried Hi-Q coil loaded dipoles, but the Z dipole was better
here. No inductor loss. No tuner needed either. It's fairly efficient.
But later at night the vertical is generally best for most distances.
MK

573. Near Field Calculations

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-16 23:51:30 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <nibos1hgmevao3fhbqlgn8gfumfr3t1mm3@4ax.com>
Source record: 65233

I'm trying to squeeze a 75m inverted V into my backyard. My neighborhood is your basic suburban ghetto so there isn't much room between homes (like 10m behind me and less to either side). Anyway, am using EZNEC4 to get an idea of how much power I can run. I am worried about the neighbors exposure level. EZNEC has a serious disclaimer about using the program to determine compliance. I understand the vagaries in accurately modeling the near field and I understand that the author does need law suits. On the other hand, I want an idea of how much trouble I have and if I need to buy an accurate field meter (or if I need to move!). Anyway, the disclaimer makes it sound as if EZNEC4 is worrthless. I assume that it is as accurate as the inputs and assumptions. Right?

On the other hand, if your worried about exposure levels, what do you do to bracket the problem?

jimg
jimg
Oregon
USA

574. Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 00:01:03 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <9ccos1ha7533l6e1cuhu8gtpi61s9cs3el@4ax.com>
Source record: 65234

Hi. I've heard and read some about ladder line and dipoles.
So what is the basic configuration look like? My impression is
the set-up starts with either a balanced tuner with 400 ohm output
or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
ladder line then runs to the dipole and that's pretty much about it.

So my EZNEC on my future backyard Vee shows about 60ohm which is about
a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
in the basic config? Or do you all put a balanced impedance
transformer up at the antenna feedpoint?

Just a little confuzed?

jimg
Oregon
USA

575. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 00:18:46 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <GJWyf.3363$F01.3076@newssvr27.news.prodigy.net>
Source record: 65235

jimg wrote:
> Hi. I've heard and read some about ladder line and dipoles.
> So what is the basic configuration look like? My impression is
> the set-up starts with either a balanced tuner with 400 ohm output
> or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
> ladder line then runs to the dipole and that's pretty much about it.
>
> So my EZNEC on my future backyard Vee shows about 60ohm which is about
> a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
> in the basic config? Or do you all put a balanced impedance
> transformer up at the antenna feedpoint?

Here's what I did and it works very well.

http://www.qsl.net/w5dxp/notuner.htm

An SWR of 12:1 on ladder-line is acceptable but where did that value
come from? 440/60 is 7.3:1. And your 440 ohm ladder-line (Wireman #554)
is probably closer to 360 ohms.
--
73, Cecil

576. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 01:20:34 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <u8hos1lulk9rgpt3mqblovhkr86cf6noah@4ax.com>
Source record: 65236

jimg wrote:

ok, got me. to be accurate, eznec says the feedpoint Z is
32-j68.5...the apex is only 60' in the sky so the feedpoint impedance
is not too high. so that's where the 12:1 roughly came from (i was
playng with the height above ground).

so the question remains, ppl really run a very high swr at the
feedpoint..is there any advantage to matching at both point? i.e.
a fixed balanced impedance transformer up there at the feedpoint, and
then, of course, a tuner down here.

>jimg wrote:
>> Hi. I've heard and read some about ladder line and dipoles.
>> So what is the basic configuration look like? My impression is
>> the set-up starts with either a balanced tuner with 400 ohm output
>> or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
>> ladder line then runs to the dipole and that's pretty much about it.
>>
>> So my EZNEC on my future backyard Vee shows about 60ohm which is about
>> a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
>> in the basic config? Or do you all put a balanced impedance
>> transformer up at the antenna feedpoint?
>
>Here's what I did and it works very well.
>
>http://www.qsl.net/w5dxp/notuner.htm
>
>An SWR of 12:1 on ladder-line is acceptable but where did that value
>come from? 440/60 is 7.3:1. And your 440 ohm ladder-line (Wireman #554)
>is probably closer to 360 ohms.

jimg
Oregon
USA

577. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 01:47:32 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <05ios1l9enb9m1rdrupdfdgbbiib6p0ddu@4ax.com>
Source record: 65237

On Tue, 17 Jan 2006 01:20:34 GMT, jimg <jamesgor@verizon.net> wrote:

> jimg wrote:
>
>ok, got me. to be accurate, eznec says the feedpoint Z is
>32-j68.5...the apex is only 60' in the sky so the feedpoint impedance
>is not too high. so that's where the 12:1 roughly came from (i was
>playng with the height above ground).
>
>so the question remains, ppl really run a very high swr at the
>feedpoint..is there any advantage to matching at both point? i.e.
>a fixed balanced impedance transformer up there at the feedpoint, and
>then, of course, a tuner down here.

Jim, you can explore the options yourself. My transmission line calculator at http://www.vk1od.net/tl/tllce.php will allow you to specify the load impedance from your NEC model or transformer, and calculate the losses on Wireman 55x ladder line.

For example, if you used 80' of 551 ladder line on 3.6MHz and the feedpoint was 32-j70, the loss would be 0.5dB and the Z at the tx end of the line would be around 380-j1200.

Owen

PS: I am a little surprised how low the R of you modelled feedpoint is... I would have expected round 60 ohms, give or take.
--

578. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 01:54:08 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns974DB61A2FB00doldridgsprintca@64.59.135.159>
Source record: 65238

jimg <jamesgor@verizon.net> wrote in
news:9ccos1ha7533l6e1cuhu8gtpi61s9cs3el@4ax.com:

> Hi. I've heard and read some about ladder line and dipoles.
> So what is the basic configuration look like? My impression is
> the set-up starts with either a balanced tuner with 400 ohm output
> or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
> ladder line then runs to the dipole and that's pretty much about it.

Tuners with baluns in them are inferior to true balanced tuners. Let's
look at your Vee for a minute.
>
> So my EZNEC on my future backyard Vee shows about 60ohm which is about
> a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
> in the basic config? Or do you all put a balanced impedance
> transformer up at the antenna feedpoint?

Assuming 50 feet of feedline a design center of 3800khz, and 31 ohms AT THE
RESONANT FREQUENCY (typical of a 90 degree vee), and a balanced tuner (for
the 450 ohm cases), you can expect feedline losses on the following order:

Belden 8240 (RG58) 0.344db
Belden 9258 (RG8X) 0.276db
450 ohm ladder line 0.102db

The coax losses above are at an SWR of 1.67 to 1, while the 450 ohm ladder
line loss is at 7.5 to 1.

Moral of the story. If you're only gonna use the antenna on 75m, use coax
and be done with it. It's not going to make much difference. BUT...

If you plan on using it on other bands, you might want to consider this:

160m (1.83mhz)

Belden 8240 25.61db (SWR > 13000 at feedpoint)
Belden 9258 24.63db
450 ohm ladder line 6.69db (SWR a bit more than 1700)

40m (7.15mhz)
Belden 8240 8.4db
Belden 9258 7.52db
450 ohm ladder line 0.221db

Note that, even at the resonant frequency and a much higher SWR, the 450
ohm line has fewer losses (but not enough to matter). But where it really
shows up is when you try to use the antenna on bands well away from its
original design frequency.

Of course using an antenna on a frequency well above the design frequency causes the pattern to break up. But that's the price of using a single, untrapped wire on a lot of bands.

--
Dave Oldridge+
ICQ 1800667

579. Re: Dick Smith Radio Direction Finder - Documentation available for download

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 02:17:27 UTC
From: Glenn McAllister <"(callsign)"@orcon.net.nz>
Message-ID: <43CC53B7.7143@orcon.net.nz>
Source record: 65239
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Glenn McAllister wrote:
>
> Dox found, photographed (no scanner)
>
> (snip)
>
> My email address is my callsign at orcon dot net dot enn zed

Zipped file of photos of documentation for this device available for
download
http://www.webdingers.com/DseRdf.zip

Will update when scanned and PDF'd

de Glenn ZL2TLD

580. Re: Near Field Calculations

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 03:13:43 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11soo7c2j8qbc0b@corp.supernews.com>
Source record: 65240

The purpose of the EZNEC disclaimer is to prevent people from using EZNEC data as evidence that some level of exposure is or is not safe for personal exposure, for example in a lawsuit. EZNEC results are allowed for use in determining compliance with FCC RF exposure standards.

You're absolutely correct that EZNEC results are only as good as the model and the skills of the person creating it.

I think you'll find that readings you get from an "accurate field meter" can easily be variable and contradictory, and a truly accurate one is likely to be very expensive.

If you're worried about exposure levels, the first step would be to try and determine what level is truly unsafe. To my knowledge, no one has ever established this, but history has shown us time and again that this has nothing to do with what a jury is likely to decide. A good place to start the learning process is http://www.arrl.org/news/rfsafety/exposure_regs.html. Among other information, it reveals the relationship among monkeys, bananas, and the FCC's conclusions about what constitutes a safe exposure level. Good luck!

Roy Lewallen, W7EL

jimg wrote:
> I'm trying to squeeze a 75m inverted V into my backyard. My
> neighborhood is your basic suburban ghetto so there isn't much room
> between homes (like 10m behind me and less to either side).
> Anyway, am using EZNEC4 to get an idea of how much power I can run. I
> am worried about the neighbors exposure level. EZNEC has a serious
> disclaimer about using the program to determine compliance. I
> understand the vagaries in accurately modeling the near field and I
> understand that the author does need law suits. On the other hand, I
> want an idea of how much trouble I have and if I need to buy an
> accurate field meter (or if I need to move!). Anyway, the disclaimer
> makes it sound as if EZNEC4 is worrthless. I assume that it is as
> accurate as the inputs and assumptions. Right?
>
> On the other hand, if your worried about exposure levels, what do you
> do to bracket the problem?
>
> jimg
> jimg
> Oregon
> USA

581. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 03:45:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <jLZyf.11365$F_3.292@newssvr29.news.prodigy.net>
Source record: 65241

jimg wrote:
> so the question remains, ppl really run a very high swr at the
> feedpoint..is there any advantage to matching at both point?

If you use ladder-line, you generally don't have to worry
about matching at the feedpoint. That's one of the advantages
of ladder-line. Ladder-line handles a 12:1 SWR just fine for
reasonable lengths.
--
73, Cecil http://www.qsl.net/w5dxp

582. Re: Near Field Calculations

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 05:00:10 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <h4uos1hduboep6imc4erheeraqcta82jm9@4ax.com>
Source record: 65242

thanks. yes, i agree measuring the field directly is very tricky and
the answer changes daily! Anyway, I've read the ARRL reference before
and my own experience and basic conservativism leads me to be very
careful. Anyway, the law. the OET65 tables, and EZNEC clearly will
allow me to run 500W PEP ssb.
I'll run about 250Wpep. This leaves me below 1/10 the uncontrolled
limit (ignoring duty cycle) except directly underneath and in-line
with the doublet (which by chance is difficult to get near).

Thanks for the time to respond.

jimg

>The purpose of the EZNEC disclaimer is to prevent people from using
>EZNEC data as evidence that some level of exposure is or is not safe for
>personal exposure, for example in a lawsuit. EZNEC results are allowed
>for use in determining compliance with FCC RF exposure standards.
>
>You're absolutely correct that EZNEC results are only as good as the
>model and the skills of the person creating it.
>
>I think you'll find that readings you get from an "accurate field meter"
>can easily be variable and contradictory, and a truly accurate one is
>likely to be very expensive.
>
>If you're worried about exposure levels, the first step would be to try
>and determine what level is truly unsafe. To my knowledge, no one has
>ever established this, but history has shown us time and again that this
>has nothing to do with what a jury is likely to decide. A good place to
>start the learning process is
>http://www.arrl.org/news/rfsafety/exposure_regs.html. Among other
>information, it reveals the relationship among monkeys, bananas, and the
>FCC's conclusions about what constitutes a safe exposure level. Good luck!
>
>Roy Lewallen, W7EL
>
>jimg wrote:
>> I'm trying to squeeze a 75m inverted V into my backyard. My
>> neighborhood is your basic suburban ghetto so there isn't much room
>> between homes (like 10m behind me and less to either side).
>> Anyway, am using EZNEC4 to get an idea of how much power I can run. I
>> am worried about the neighbors exposure level. EZNEC has a serious
>> disclaimer about using the program to determine compliance. I
>> understand the vagaries in accurately modeling the near field and I
>> understand that the author does need law suits. On the other hand, I

>> want an idea of how much trouble I have and if I need to buy an
>> accurate field meter (or if I need to move!). Anyway, the disclaimer
>> makes it sound as if EZNEC4 is worrthless. I assume that it is as
>> accurate as the inputs and assumptions. Right?
>>
>> On the other hand, if your worried about exposure levels, what do you
>> do to bracket the problem?
>>
>> jimg
>> jimg
>> Oregon
>> USA

jimg
Oregon
USA

583. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 13:14:12 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <U9GdnRzfQ90_cFHenZ2dnUVZ_t2dnZ2d@comcast.com>
Source record: 65244

jimg wrote:

> Hi. I've heard and read some about ladder line and dipoles.
> So what is the basic configuration look like? My impression is
> the set-up starts with either a balanced tuner with 400 ohm output
> or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
> ladder line then runs to the dipole and that's pretty much about it.
>
> So my EZNEC on my future backyard Vee shows about 60ohm which is about
> a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
> in the basic config? Or do you all put a balanced impedance
> transformer up at the antenna feedpoint?
>
> Just a little confuzed?
>

12:1 is just about right! What are you worried about? My VSWR on 80 meters is almost 30:1. I get excellent results.

VSWR is NOT bad. I know the Ham Mantra of low VSWR. But, it is a false mantra. Once the antenna SYSTEM [antenna, feedline] is matched you get maximum power transmitted to the load.

584. noise bridge

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 13:39:02 UTC
From: jawod <jawod@fuse.net>
Message-ID: <678ea$43ccf378$42a1bfc2$9536@FUSE.NET>
Source record: 65245

As I read through the various opinions regarding antenna load,
impedance, etc., most of the arguments seem to be mathematically oriented.

Does anyone use a noise bridge (as mentioned in ARRL pubs) to determine
the feedpoint impedance?

Is there a source for these bridges?

This came up as I am studying for general exam.

Thanks

john

585. Re: noise bridge

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 14:41:02 UTC
From: gsm@mendelson.com
Message-ID: <slrndsq03f.fvo.gsm@cable.mendelson.com>
Source record: 65246

jawod wrote:

> Does anyone use a noise bridge (as mentioned in ARRL pubs) to determine
> the feedpoint impedance?

I used to until MFJ came out with their antenna analyizers. I bought
a model 249 which read directly in SWR which is what I was interested
in. The newer ones read impedance also.

> Is there a source for these bridges?

They can be had used, made fairly easily and I've seen kits. I had a Palomar
which I sold when I bought the MFJ unit.

> This came up as I am studying for general exam.

Good luck!

73,

Geoff.

--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
The trouble with being a futurist is that when people get around to believing
you, it's too late. We lost. Google 2,000,000:Hams 0.

586. Re: Near Field Calculations

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 15:38:05 UTC
From: Bill Ogden <wogden@attglobal.net>
Message-ID: <eY7zf.26$dd5.1@fe11.lga>
Source record: 65247

> I'll run about 250Wpep. This leaves me below 1/10 the uncontrolled
> limit (ignoring duty cycle) except directly underneath and in-line
> with the doublet (which by chance is difficult to get near).

Do not ignore duty cycle. It is one of the most important factors involved. For someone like myself, who listens a lot on CW and does not transmit much, the duty cycle is something like 1% and this makes a huge difference in the exposure results.

250 watts PEP (with reasonable compression) and a talk time of perhaps 25% probably yields a duty cycle less than 10%. (Someone else will probably have a real formula for PEP x compression x average voice.) The averaging time is not always clear in the exposure formulas, and this could make a large difference. What is your duty cycle averaged over 24 hours?

Bill
W2WO

587. Re: Harry E. Landsberg, Jr., CIA Maltese Falcon: Kennedy assassination, IRAN/CONTRA, UFO's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 18:06:22 UTC
From: Laura <lhann10243@earthlink.net>
Message-ID: <1137521182.584005.180960@z14g2000cwz.googlegroups.com>
Source record: 65248

Harry has a small voice/mouse voice. If you're a survivor you may have heard it. It may be technology, projected (from a satellite.) One survivor said she thought she might have an inner alter patterned after Harry. You may have a crown as a receiver (I have a crown of unknown origin, upper left quadrant, near the front.) I heard a Barbra Streisand song in my left ear once. I have a "dimple" behind my ear. Mesh might be part of the conductive system receiving signals from satellites.

Please see:

"To My Friend -- more iii"
http://home.earthlink.net/~twainable2lhann/id7.html

"To My Friend -- more iv"
http://home.earthlink.net/~raiyndoelhann/id7.html

Please see "Air Force" for more information about mesh, links at bottom of page:

http://home.earthlink.net/~sammark4/id243.html.

Laura

588. Re: [question] current/voltage amplitude inducted in antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 18:53:59 UTC
From: Jim Kelley <jwkelley@nospam.edu>
Message-ID: <dqjegh$4nv$1@news.service.uci.edu>
Source record: 65249

Cecil Moore wrote:
> The main wave in an ordinary transmitting dipole is conducted,
> not inducted.

That's right. To be inducted requires a vote of the academy. :-)

jk

589. Antenna Seperation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 19:40:25 UTC
From: Ted <notthisway@lostinthewoods.org>
Message-ID: <dKGdnQkqGaWJ1VDenZ2dnUVZ_s6dnZ2d@comcast.com>
Source record: 65250

I've been working with some fishing boats and these guys want to have
redundent VHF setups - two radios, two antennas. Only one would be used
and turned on. My concern is that the unused antenna could couple as a
parasitic element and effect SWR of the operating antenna. Do I really
need to worry about it? If so haw far apart do the two antennas have to be?
--
Sorry for the bad e-mail address
SPAM is just too much to take

590. Re: Dipole and Ladder Line Matching

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 20:05:43 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43cd4e16$0$29195$8fcfb975@news.wanadoo.fr>
Source record: 65251

Hi Jimg,

Do not bother about the antenna impedance if you want to use it as a multi-band antenna because it will change a lot with the frequency band.

1) First, install a dipole 2 x D, D being the higher length that can afford your backyard. (2 x 20 m is good for 80m band operation)
http://www.barbaxoops.com/modules/xcgal/displayimage.php?album=7&pos=4&pid=4

2) Then you install the ladder (in the middle of the dipole). The ladder should go straight from the center of the dipole to the antenna tuner (in the shack). The ladder can be made of electric wires and PVC pipes as spacers (do not forget to glue them)
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=5&album=7&pos=5
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=57&album=7&pos=2

3) Finally, you built an balanced antenna tuner. The F3LG type is the easiest to built. The MacCoy (see the following pictures) is the most popular
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=46&album=7&pos=0
http://www.barbaxoops.com/modules/xcgal/displayimage.php?album=7&pos=1&pid=47

... as you know, that antenna is called a "Center Feeded Dipole" .... but french people say "Antenne Levy"

Contact me if you want more details about it.

Best regards

Jean-Marc
F4DRH
www.barbaxoops.com

> Hi. I've heard and read some about ladder line and dipoles.
> So what is the basic configuration look like? My impression is
> the set-up starts with either a balanced tuner with 400 ohm output
> or a 50 ohm tuner with a 4:1 balun to the 440ohm ladder line. The
> ladder line then runs to the dipole and that's pretty much about it.
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> So my EZNEC on my future backyard Vee shows about 60ohm which is about
> a 12:1 mismatch at the antenna feedpoint! So do I have something wrong
> in the basic config? Or do you all put a balanced impedance
> transformer up at the antenna feedpoint?
>
> Just a little confuzed?
>
>

> jimg
> Oregon
> USA

591. Re: OCF - Multiband antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 22:10:29 UTC
From: N4BE <nahtazu2002@yahoo.com>
Message-ID: <1137535829.636540.129730@z14g2000cwz.googlegroups.com>
Source record: 65252

I just put up the Buckmaster/Alpha Delta OCF 6 band antenna and so far the SWR is very good on ham bands. I am not yet able to compare it against a regular dipole on those bands, although signals are very good so far. I was a bit leery of these kinds of antennas after learning the B&W put resistors in the center feed to smooth out the swr, for their G5RV version. I do not believe the Buckmaster design does this, it is fed off center at a 300 ohm point with a 6:1 balun, per the advertisment. Anyone else have this antenna? Jim N4BE

Gary from McDonough wrote:
> If you have one of the Off Center Fed dipole, Inverted Vee antennas
> that is out there either by Alpha-delta or HamCallnet's Buckmaster 6
> band antenna. It appears that all these have the insulated wire that
> can run around trees with no problem and are constructed with 6:1
> baluns. All of them say that they work most bands great without a
> tuner (15 mtr not included). I'm just curious of those on the
> newsgroup are any of you owners of any of these antennas? If so are
> the reports true that they out perform most other dipoles and Vees
> correct?
>
> What do you think of the antennas and would you buy it again? Also
> which of the OCF antennas do you own or like?
>
> Thanks in advance
>
> Gary

592. Re: Antenna Seperation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 22:51:39 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <SJWcncusIopg6VDeSa8jmw@karoo.co.uk>
Source record: 65253

Ted wrote:

> I've been working with some fishing boats and these guys want to have
> redundent VHF setups - two radios, two antennas. Only one would be used
> and turned on. My concern is that the unused antenna could couple as a
> parasitic element and effect SWR of the operating antenna. Do I really
> need to worry about it? If so haw far apart do the two antennas have to
> be?

Ted,

One way is to place the aerials at a "non 1/4 or 1/8" wavelength apart from each other but VHF is really not that bothered if you are more than a 1/4 away.

If you really want to be sure, just tilt the spare aerial 90 degrees in the horizontal plane. That will limit the interaction even further.

I imagine the spare receiver have a 50 Ohms input impedance but only while powered up! This means that there are no good way to tell whats at the end of the spare aerial...

But, forget about the details and just install the aerials at a more than but at a non-1/4 of a wavelength distance apart and all will be good enough!

Cheers

Dan / M0DFI

593. Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 23:14:16 UTC
From: Maarten <maartenkoning2002@yahoo.com>
Message-ID: <1137539656.712611.283320@g47g2000cwa.googlegroups.com>
Source record: 65254

Hi,

I seek some help, advise or suggestions on HF antenna's. I've bought a house with a plot of approx 330 x 80 ft / 100 x 23 mtr available for HF antenna's.
But when I research HAM HF antenna's, home build or commercially available, I only find a lot of small, smaller and smallest HF antenna's (eg. wire antenna's, inverted V, T2DF) that don't take full advantage of the size of my land available. On the other end of the spectrum there are plans for very, VERY large antenna's like Rhombic and Beverage. For this size of antenna's my plot is to small.

Do you have suggestions for HF antenna's I should check out? Let me know in this forum or pm me. Thanx in advance. 73

Maarten
maartenkoning2002 (at) yahoo.com

594. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 23:25:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <52fzf.2827$Yu.423@newssvr27.news.prodigy.net>
Source record: 65255

Maarten wrote:
> Do you have suggestions for HF antenna's I should check out? Let me
> know in this forum or pm me. Thanx in advance. 73

Here's information on a 130 ft. dipole, good for 80m-10m.
--
73, Cecil http://www.qsl.net/w5dxp/notuner.htm

595. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 23:37:29 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <vcvqs15g0p53msesltkhliqq1nre2hfss3@4ax.com>
Source record: 65256

On 17 Jan 2006 15:14:16 -0800, "Maarten" <maartenkoning2002@yahoo.com>
wrote:

>Hi,
>
>I seek some help, advise or suggestions on HF antenna's. I've bought a
>house with a plot of approx 330 x 80 ft / 100 x 23 mtr available for HF
>antenna's.
>But when I research HAM HF antenna's, home build or commercially
>available, I only find a lot of small, smaller and smallest HF
>antenna's (eg. wire antenna's, inverted V, T2DF) that don't take full
>advantage of the size of my land available. On the other end of the
>spectrum there are plans for very, VERY large antenna's like Rhombic
>and Beverage. For this size of antenna's my plot is to small.
>
>Do you have suggestions for HF antenna's I should check out? Let me
>know in this forum or pm me. Thanx in advance. 73

Marteen, the reason for the gap from small to very large antennas is
mainly that the longer ones are developments of long wires and need to
be several wavelengths long at the lowest operating frequency.

However, it sounds like you block is large enough to accomodate a half
wave dipole on 160m... it all depends on the bands that are of
interest to you. Similarly, you migh be able to accomodate an Extended
Double Zepp for 80m, depending on orientation requirements, or an
array of verticals. Don't forget that guyed structures consume space
for the back guys. The space might allow you to erect several towers /
antennas without them all being tightly coupled as is the case with
smaller blocks. Whilst you are working at how to fill the space now, I
am guessing that it won't be too long before the space won't seem
large enough!

Owen>
>Maarten
>maartenkoning2002 (at) yahoo.com
--

596. Re: OCF - Multiband antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-17 23:45:13 UTC
From: nm5k@wt.net
Message-ID: <1137541513.803692.150300@o13g2000cwo.googlegroups.com>
Source record: 65257

If so are
the reports true that they out perform most other dipoles and Vees
correct? ...

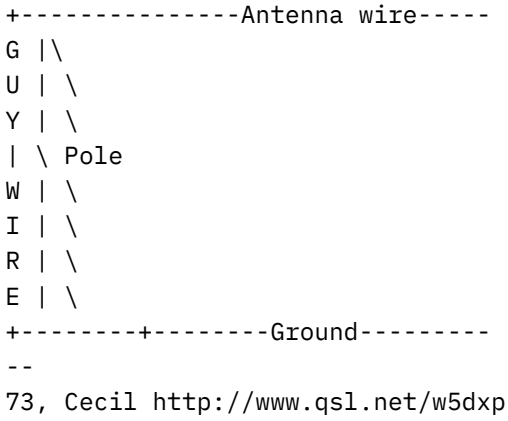
LOL.... Depends what they mean by "most"....
MK

597. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 00:06:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <MDfzf.5783$_S7.2446@newssvr14.news.prodigy.com>
Source record: 65258

Owen Duffy wrote:
> Don't forget that guyed structures consume space for the back guys.

A friend of mine in AZ solved that problem like this.



--
73, Cecil http://www.qsl.net/w5dxp

598. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 00:07:19 UTC
From: 'Doc <w5lz@cwis.net>
Message-ID: <XEfzf.910$NS6.174@newssvr30.news.prodigy.com>
Source record: 65259

Maarten,
How about a loop. Something like 320 x 120, or whatever
you can manage. Tuner and ladder line fed.
'Doc

599. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 00:22:18 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11sr2hvf93pt27f@corp.supernews.com>
Source record: 65260

What exactly do you mean by an antenna that "takes advantage" of your lot size? The main advantage of a larger antenna over a simple one is higher gain. But you only get gain in one or a few directions, at the expense of gain in other directions. So unless you can rotate the large antenna, you'll have an antenna that works great in a very few directions but typically much worse than a dipole in most others. Is that what you want?

One of the few ways to get both gain and some control over pattern direction is with a phased array of verticals, symmetrically constructed so you can switch directions. Among the sources for information are ON4UN's _Low-Band DXing_ and Chapter 8 of the _ARRL Antenna Book_.

Roy Lewallen, W7EL

Maarten wrote:
> Hi,
>
> I seek some help, advise or suggestions on HF antenna's. I've bought a
> house with a plot of approx 330 x 80 ft / 100 x 23 mtr available for HF
> antenna's.
> But when I research HAM HF antenna's, home build or commercially
> available, I only find a lot of small, smaller and smallest HF
> antenna's (eg. wire antenna's, inverted V, T2DF) that don't take full
> advantage of the size of my land available. On the other end of the
> spectrum there are plans for very, VERY large antenna's like Rhombic
> and Beverage. For this size of antenna's my plot is to small.
>
> Do you have suggestions for HF antenna's I should check out? Let me
> know in this forum or pm me. Thanx in advance. 73
>
> Maarten
> maartenkoning2002 (at) yahoo.com
>

600. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 00:28:16 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <kn2rs1h1be6e5jogel9trb2om8kghpo5va@4ax.com>
Source record: 65261

On Wed, 18 Jan 2006 00:06:04 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Owen Duffy wrote:
>> Don't forget that guyed structures consume space for the back guys.
>
>A friend of mine in AZ solved that problem like this.
...

Ok. I am assuming that there is 1 back guy and two front guys (not shown). If you do the structural analysis, you will see why that configuration is not common.

Owen
--

601. Re: noise bridge

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 01:50:47 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ls6rs19cq0oho0ekst17jrti4ctglh3kh6@4ax.com>
Source record: 65262

On Tue, 17 Jan 2006 08:39:02 -0500, jawod <jawod@fuse.net> wrote:

>Does anyone use a noise bridge (as mentioned in ARRL pubs) to determine
>the feedpoint impedance?
>
>Is there a source for these bridges?

Hi John,

A noise bridge is the same as any bridge used to measure Z. Yes it has a source (if you mean RF source) and it is as the name implies: noise.

The noise represents a wide band spectrum source rather than a fine tuned RF oscillator source. The benefit of this is that you don't have to tune your receiver to the oscillator and be plagued with the frequency drift of either, or both. The noise source guarantees you can tune your receiver anywhere, and there will be a source signal to measure the Z against.

The downside to this is that it takes a lot of Watts into a noise source to equal an adequate mW output from an oscillator. A lot of Watts is not always available, and certainly not any cheaper than an oscillator. Hence, you can suffer from not having enough dynamic source range to find the null balance of the bridge. For some measurements, like tuning an antenna, the noise is sufficient for an average SWR. For other measurements, like measuring Q, there is not enough oomph.

The cheap noise bridges simply use a Zener diode biased near avalanche. (This is why signal clippers, like back-to-back diodes at the antenna terminal, are anathema.) If you think about the bandwidth you want, and the power applied, you will see that you are spreading a few mW across a lot of MHz. Frequently the diode source is amplified through a wideband Amp. Myself, I have a constantly, weakly illuminated Photomultiplier Tube that I use as a very wideband noise source. Very simple concept, but not everyone has access to PMT's.

73's
Richard Clark, KB7QHC

602. Re:Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 01:59:16 UTC
From: ml <m@di.net>
Message-ID: <m-B6DD09.20590617012006@news.verizon.net>
Source record: 65263

Hi

FYI, seems your email addr here dosn't work, if it's a real one

Dear Amos

i saw your post and hope you wouldn't mind if i asked you a quick
quesiton

Your Icom that was damaged, was unplugged from everything so how did
lightning 'get to it'??

I was kinda distrubed trying to figure it out

V sory to hear of your damage

ml

In article <a5SdnR54pJtCjVHeRVn-sw@comcast.com>,
Amos Keag <A.K01@comcast.net> wrote:

> Robert11 wrote:
>
> > Hello:
> >
> > The more I read up on this subject, the more confused I get.
>
> SNIPPED
>
> > Questions:
> >
> > a. For either unit, is the arrestor placed between the Balun and the
> > antenna, or between the Balun and the radio ? Why ?
>
> First, the comment in another response regarding direct strike is mostly
> valid. No arrestor will protect from direct strike. [up to 100,000
> amperes in less than 1 microsecond, with a 20,000 volt per meter E field.]
>
> Second, for near strike, the arrestor should be installed depending on
> arrestor design. For coax based designs installation should be between
> balun and radio. For open wire design it should be installed at the wire
> to balun interface. Near strike is a non precise technical term. For
> near strike in the 10,000 E field zone the arrestor probably won't
> provide the protection you seek. For the 1,000 E field zone you should
> get some protection.
>
> Why? When the arrestor ignites, fires, actuates there still is a voltage

> across the arrestor. This is the net voltage from the plasma in the
> spark gap or in the ionized internal gasses. This net voltage transient
> has a power density that extends from BC/MF [<160 meters] to the HF/VHF
> boundary around 30 MHz. It is a broadband pulse. The question is how
> much voltage can the radio be exposed to without damage?
>
> >
> > b. The Polyphaser unit apparently, when triggered, shunts the charge (only)
> > to the coax shield. The only path to ground would then be up to the radio,
> > thru the
> > chassis, and then to the AC power ground.
> >
> > Or, I guess, possibly back the other way via the Balun's ground ? Or both ?
> > I would also image that the Balun's windings would probably blow too quickly
> > to truly shunt any pulse to its ground ?
> >
> > There doesn't seem to be any separate ground lug, like the ICE units
> > have from their pictures.
> >
> > I'm a real novice with this lightning protection stuff, so I am
> > probably missing something, particularly with the Polyphaser
> > shunting-to-the-shield-only approach which
> > doesn't seem too great regarding how an adequate RF ground is reached for
> > any
> > diverted strike/pulse.
> >
> > What am I missing or not considering with the Polyphaser approach ?
> > Thoughts on ?
> >
> > c. Any opinions on the Polyphaser vs. the ICE units for a receiving only
> > application ?
> >
> > Much thanks,
> > Bob
> >
>
> The best solution is to disconnect the antenna and move it away from the
> radio when not in use.!!
>
> I'm a retired Aerospace/Electrical engineer who spent years designing
> for lightning strikes both direct and near strikes. My station is 100%
> conforming to electrical code and lightning mitigation techniques. Last
> July, a near strike lightning pulse caused the ground fault interruptors
> for the pool, the bathroom and the kitchen to function. The circuit
> breakers in the service panel for the basement power distribution
> opened, and the power transformer on the utility pole about 1/2 mile
> away exploded. I lost my ICOM 756 ProII which was disconnected from the
> power lines, notebook computer, USB damage in a second computer on the
> in-house LAN, and one telephone. The ICOM 756 Pro II was disconnected
> from the antennas, and the lightning surge protectors did not actuate. A

> post fault failure analysis indicated that there was a surge in the
> utility power neutral to ground. The entire neighborhood of over 50
> homes suffered some degree of damage. It is estimated by the power
> utility that the strike was 1/2 mile away.
>
> My ICOM 746, my Kenwood TM-G707, and the numerous power supplies
> suffered NO damage. Go Figure :-)
>
> CONCLUSION: Lightning finds way to kill electronics no matter how well
> the equipment is installed.
>
>
> >
> >
> >

603. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 04:19:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <iljzf.5851$_S7.5111@newssvr14.news.prodigy.com>
Source record: 65264

Owen Duffy wrote:
> Ok. I am assuming that there is 1 back guy and two front guys (not
> shown). If you do the structural analysis, you will see why that
> configuration is not common.

As I remember, my AZ friend had some sort of A-Frame support
about half-way down the pole. I don't recall more than one
guy wire at the top of the pole.
--
73, Cecil http://www.qsl.net/w5dxp

604. EzNEC Antenna Voltages

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 04:42:38 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <s8hrs1hfc3omif942vken1roerrkhpovs7@4ax.com>
Source record: 65265

EZNEC4 computes the antenna currents. Knowing the voltages would be interesting. Unlike the feeder line where the voltage or current are easily determined from the characteristic impedance, the line parameters, and the terminating impedance, how do you determine the antenna voltages? First blush says, uh, 377ohms relates the voltages and current, but that's in free space. The antenna has radiation, inductive, and electric fields (well, the radiation field is actually the transverse electric field component), so how does one go about getting the voltage as a function of antenna position (EZNEC current). I'm sure the answer is obvious but I'd appreciate confirmation (of an answer and my clouded intellect).
Thanks.
jimg
Oregon
USA

605. Re: EzNEC Antenna Voltages

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 05:08:32 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11srjamv81gr17@corp.supernews.com>
Source record: 65266

jimg wrote:
> EZNEC4 computes the antenna currents. Knowing the voltages would be
> interesting. Unlike the feeder line where the voltage or current are
> easily determined from the characteristic impedance, the line
> parameters, and the terminating impedance, how do you
> determine the antenna voltages?

You don't. Voltage is a measure of the potential between two points. When those points are separated in space and in the presence of a changing magnetic field, which is the situation near an antenna, the voltage you would measure depends on the path you take between the two points. Crudely and not completely accurately put, it depends on how you orient your meter leads.

First blush says, uh, 377ohms relates
> the voltages and current, but that's in free space.

No. 377 ohms is the ratio of E to H field of a plane wave in free space. It isn't the ratio of any voltage to any current anywhere. There is no current in free space, and voltage depends on the path you take, as I said above.

> The antenna has
> radiation, inductive, and electric fields (well, the radiation field
> is actually the transverse electric field component), so how does one
> go about getting the voltage as a function of antenna position (EZNEC
> current).

You don't. It's not possible. Which is why EZNEC doesn't do it.

> I'm sure the answer is obvious but I'd appreciate
> confirmation (of an answer and my clouded intellect).
> Thanks.

Roy Lewallen, W7EL

606. Re:Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 05:11:04 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43cdc027@fidonet.org>
Source record: 65267

"ml" bravely wrote to "All" (18 Jan 06 01:59:16)
--- on the heady topic of "Re:Amoskeag Lightning Arrestor Questions"

ml> From: ml <m@di.net>
ml> Xref: core-easynews rec.radio.amateur.antenna:222810

ml> Hi

ml> FYI, seems your email addr here dosn't work, if it's a real one

ml> Dear Amos

ml> i saw your post and hope you wouldn't mind if i asked you a quick
ml> quesiton

ml> Your Icom that was damaged, was unplugged from everything so how did
ml> lightning 'get to it'??

ml> I was kinda distrubed trying to figure it out

I'm guessing his radio was most likely damaged from EMP. An
acquaintance had a direct hit on his tower and even his tv's remote
control fried.

A*s*i*m*o*v

607. Re: EzNEC Antenna Voltages

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 05:52:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <BIkzf.389$2O6.54@newssvr12.news.prodigy.com>
Source record: 65268

Roy Lewallen wrote:
>> The antenna has
>> radiation, inductive, and electric fields (well, the radiation field
>> is actually the transverse electric field component), so how does one
>> go about getting the voltage as a function of antenna position (EZNEC
>> current).
>
> You don't. It's not possible. Which is why EZNEC doesn't do it.

The current reported by EZNEC is the net standing-wave current
(for standing-wave antennas). That current is associated with
the standing-wave's H-field which can be measured. The standing-
wave also has an E-field. Is there any way to measure the magnitude
and phase of the E-field? I vaguely remember a florescent light
bulb being turned on by the E-field, glowing brightest at the
tip of a mobile antenna.
--
73, Cecil http://www.qsl.net/w5dxp

608. Re: EzNEC Antenna Voltages

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 07:05:03 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <hpprs1l6e4j6jbjmo6gf4s2m6fcfa7m87g@4ax.com>
Source record: 65269

yep, that was silly, what was i thinking about?!?!
i guess what i was really after was the peak E field near the
antenna.actually it's there in the NF Tab...just have to figure out
how run/plot the result...

anyway, thanks... i still can't believe that's what I asked for...like
i forgot what a line integral was for...

ok, bye

>jimg wrote:
>> EZNEC4 computes the antenna currents. Knowing the voltages would be
>> interesting. Unlike the feeder line where the voltage or current are
>> easily determined from the characteristic impedance, the line
>> parameters, and the terminating impedance, how do you
>> determine the antenna voltages?
>
>You don't. Voltage is a measure of the potential between two points.
>When those points are separated in space and in the presence of a
>changing magnetic field, which is the situation near an antenna, the
>voltage you would measure depends on the path you take between the two
>points. Crudely and not completely accurately put, it depends on how you
>orient your meter leads.
>
> First blush says, uh, 377ohms relates
>> the voltages and current, but that's in free space.
>
>No. 377 ohms is the ratio of E to H field of a plane wave in free space.
>It isn't the ratio of any voltage to any current anywhere. There is no
>current in free space, and voltage depends on the path you take, as I
>said above.
>
>> The antenna has
>> radiation, inductive, and electric fields (well, the radiation field
>> is actually the transverse electric field component), so how does one
>> go about getting the voltage as a function of antenna position (EZNEC
>> current).
>
>You don't. It's not possible. Which is why EZNEC doesn't do it.
>
>> I'm sure the answer is obvious but I'd appreciate
>> confirmation (of an answer and my clouded intellect).
>> Thanks.
>
>Roy Lewallen, W7EL

jimg
Oregon
USA

609. Re: Speaking of A.M. reception

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 12:35:12 UTC
From: wood@itd.nrl.navy.mil
Message-ID: <wood-1801060735280001@jbw-mac.itd.nrl.navy.mil>
Source record: 65270

In article <Vb0zf.3901$w72.1438@bignews4.bellsouth.net>, "hossdaddy"
<reply@newsgroup.net> wrote:

> Hi Bill,
>
> You might actually be right. I think that's what they are trying to do to
> hams with the possibility of BPL.
>
> I think that AM (as it is) should stay that way FOREVER. I am not opposed
> to these stations using a parallel form of digital broadcasting (IBOC?) but
> to turn the AM-DSB transmitters off I think would be a tragedy. It is the
> only form or radio that can be easily demodulated. A grandfather can sit
> down with his grandson, a bunch of wire, an oatmeal box, and a few other
> cheap components and in a few hours have a working (and demonstratable)
> radio - FREE RADIO - and discounting lightning it is 100% safe too! It's
> that kind of thing that got me into the hobby - and with the numbers of
> licensees dwindling and our RF bandwidth at stake it is high time that we
> get the next generation interested.
>
> 73!
> Paul
> KD4GNU

Hello, and I share your sentiments but technology moves on. You either keep up with it or be left behind. I get nostalgic over old vacuum tube radios like the Collins KWM types or some Drake models but I wouldn't want to be stuck in that period. Lots of wonderful things to discover in the here-and-now, even pour moi (who passed forty about 16 years ago).

There's plenty of electronics out there to interest young minds if you look for it. Ramsey offers some electronic lab kits I wished I'd had as a kid. And speaking of AM-DSB wasn't a spark-gap transmitter using morse code even simpler (well maybe not if you were using a Branly coherer on the receive end and those transmitting antennas sure seemed to require a lot of wire and towers)? I built crystal and one-tube radios as cub/boy scout projects but what I really wanted to construct was a superhet (or maybe a TRF type) since I knew they could pull in lots of stations without requiring an outdoors antenna. For simplicity and ease of construction the majority of those DIY home radio projects excluded the RF and/or IF amplification required to provide a requisite level of receiver sensitivity with an internal antenna. Never built a superhet but I constructed an FM broadcast receiver using a tunnel diode (a componont one of my later Va Tech EE profs would refer to as an "electronic Edsel") as a junior high science fair project. Just a few thoughts. Sincerely, and
73s from N4GGO,

John Wood (Code 5550) e-mail: wood@itd.nrl.navy.mil
Naval Research Laboratory
4555 Overlook Avenue, SW
Washington, DC 20375-5337

610. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 13:24:40 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <feqdnaCk27gJ3FPeRVn-qw@comcast.com>
Source record: 65271

ml wrote:

> Hi
>
> FYI, seems your email addr here dosn't work, if it's a real one
>
> Dear Amos
>
> i saw your post and hope you wouldn't mind if i asked you a quick
> quesiton
>
>
> Your Icom that was damaged, was unplugged from everything so how did
> lightning 'get to it'??
>
> I was kinda distrubed trying to figure it out
> \

Ground Loop. Took time to find it though.

The Astron RS-35 power supply connects utility power neutral to the case. It also connects the 13.8 volt return to the case. [This is commercial common practice but is prohibited in Military Systems design.] Although everything on the operating table was isolated from the utility power and external antennas, everything was connected together by coax braid, connections to the operating position common 'ground', and the 13.8 volt return.

Remember, this strike caused large area damage. Close to 50 homes suffered some damage. Several homes took up to 6 weeks to have their internet functioning again.

The lightning strike tripped all [ALL] ground fault interruptors in the house. The ground loop in my system connected chassis and power returns and coax cable together. The weak link were circuit boards in my 756 Pro II filter and tuner. The boards VAPORIZED. Smoke all over the place. Pungent smell, etc. That failure protected my IC-746, Kenwood TM-G707, etc from damage. [Expensive fuse!!]

I wonder if it also protected my swimming pool pump and heater from damage <grin>?

611. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 15:18:57 UTC
From: Dan Richardson <>
Message-ID: <b1nss19407vsl681trvdn2ps7vp5a5toe7@4ax.com>
Source record: 65272

On Wed, 18 Jan 2006 08:24:40 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>The Astron RS-35 power supply connects utility power neutral to the
>case. It also connects the 13.8 volt return to the case. [This is
>commercial common practice but is prohibited in Military Systems
>design.]

You've tweaked my curiosity what does the military do?

73
Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

612. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 17:10:59 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <arsss19ctgggio5dk1stlq99qb7krkb4dp@4ax.com>
Source record: 65273

On Wed, 18 Jan 2006 07:18:57 -0800, Dan Richardson <> wrote:

>>The Astron RS-35 power supply connects utility power neutral to the
>>case. It also connects the 13.8 volt return to the case. [This is
>>commercial common practice but is prohibited in Military Systems
>>design.]
>
>You've tweaked my curiosity what does the military do?

Hi Dan,

They use ground as a shield, not a current carrier. This is also suppose to be code for commercial and retail electronics devices. Connecting the metal cabinet to neutral was supposed to have slipped into La Brea tarpits with the dinosaurs. Back before polarized plugs, you could electrocute yourself by guessing wrong, touching the metal surface and also being grounded. The bridging between toasters and water taps (or stove tops or fridges) come to mind.

Also common, but nearly as fatal, was the practice of putting two, series capacitors across the AC line into receivers to cut down on noise from the lines. They would also take the tap of the two caps and tie that to the chassis, thus insuring half the line potential was always on its surface, unless you provided a ground connection. This was one of those suicide connections where if you were holding the chassis and pulled the ground lead, you automatically became a fried line fuse. Members of our hobby have preserved this suicide connection by grounding their remote antenna (or equipment) through the coax shield instead of through a separate ground wire (this is why we have codes).

GFI breakers sense the common mode current (that current that has escaped the neutral/hot loop) on the shield path (although it is called a safety ground for 60Hz service).

73's
Richard Clark, KB7QHC

613. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 17:23:01 UTC
From: richardharrison@webtv.net
Message-ID: <5543-43CE7975-1637@storefull-3256.bay.webtv.net>
Source record: 65274

Maarten wrote:
"Do you have suggestions for antennas I should check out?"

I am listening to Radio Marti and too jammers on the same frequency. Cuba is the target. Who knows where the transmitters are? Marti is said to be in Miami but that is not necessarily its transmitter location. Likewise the jammers may be in Cuba or elsewhere. LocaL Jammers must be much more numerous to cover the same territory for a large area, but they are more effective. The band is 25 meters, about 12 MHz, a year-round performer.

Monitoring Radio Marti in Houston with a small battery portable complete with its telescopic antenna convinces me that a listener is better served using horizonta polarization due to the nulls off the antenna tips which reject interference. The antenna should also be rotatable for maximum signal and, or, minimum interference.

A large antenna is usually impractical to rotate. Curtains and rhombics can have high gain and directionality. You can erect enough of these to cover all azimuths desired, then you don`t need to rotate any antennas. So many antennas are usually not possible for the amateur.

For the radio amateur, an assortment of Yagis mounted on rotators can cover all desired frequency bands and directions effectively and efficiently.

Best regards, Richard Harrison, KB5WZI

614. Re:Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 18:17:51 UTC
From: richardharrison@webtv.net
Message-ID: <19272-43CE864F-1277@storefull-3255.bay.webtv.net>
Source record: 65275

Asimov wrote:
"An acquaintance had a direct hit on his tower and even his tv`s remote control head."

Did he hear a voice boom from the clouds saying: "Dammit! Missed again!"?

A good tower ground should mitigate lightning`s fiversion through a TV remote control. But, I`ve seen stories of "ball lightning" chasing about inside a house.

Best regards, Richard Harrison, KB5WZI

615. Re: Antenna Seperation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 18:41:44 UTC
From: Bruce in Alaska <bruceg@btpost.net>
Message-ID: <bruceg-C85E32.09431318012006@netnews.worldnet.att.net>
Source record: 65176

In article <dKGdnQkqGaWJ1VDenZ2dnUVZ_s6dnZ2d@comcast.com>,
Ted <notthisway@lostinthewoods.org> wrote:

> I've been working with some fishing boats and these guys want to have
> redundent VHF setups - two radios, two antennas. Only one would be used
> and turned on. My concern is that the unused antenna could couple as a
> parasitic element and effect SWR of the operating antenna. Do I really
> need to worry about it? If so haw far apart do the two antennas have to be?

These must be very small fishing boats, as ALL vessels over 65 Ft MUST
have two Vhf receivers operational while navigating. Marine ch16, and
marine ch13. this is required by The Bridge to Bridge Radiotelephone
Act.
It really isn't a big deal as long as the two antennas have some
seperation either vertical or horozontal. I have installed multiple
MORAD 156HD antennas on a Masthead Tree, using 24inch Standoffs,
and not had any problems with simulataious operations as long as the
radio's frequencies were seperated by 50Khz or more. Of course I
was working with good commercial type Vhf's like Modar55/75 or
SEA156's, and not the RayJeff consumer crap that one would usually find
on noncommercial vessels.

Bruce in alaska
--
add a <2> before @

616. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 18:56:44 UTC
From: Maarten <maartenkoning2002@yahoo.com>
Message-ID: <1137610604.343094.102730@z14g2000cwz.googlegroups.com>
Source record: 65177

Tnx fer ur ideas OM's, I will surely check the books out.
I might choose a monopole conical antenna for broadband vertical
omnidirectional radiation (if I discover building plans somewhere) (if
you do'n know what a monopole conical antenna is, check out
http://www.antenna.be/vm.html)
I will keep researching this subject, so as before, all ideas and
suggestions are more than welcome.

73

617. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 19:08:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11st4h9qcfv0td5@corp.supernews.com>
Source record: 65178

You'll find information on this kind of antenna in many publications.
It's commonly called a "discone".

Roy Lewallen, W7EL

Maarten wrote:
> Tnx fer ur ideas OM's, I will surely check the books out.
> I might choose a monopole conical antenna for broadband vertical
> omnidirectional radiation (if I discover building plans somewhere) (if
> you do'n know what a monopole conical antenna is, check out
> http://www.antenna.be/vm.html)
> I will keep researching this subject, so as before, all ideas and
> suggestions are more than welcome.
>
> 73
>

618. Re: Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 19:30:42 UTC
From: richardharrison@webtv.net
Message-ID: <12633-43CE9762-1365@storefull-3254.bay.webtv.net>
Source record: 65180

Robert 11 wrote:
"For either unit is the arrester placed between the Balun and the antenna, or between the Balun and the radio? Why?

It likely is superflous.

Coax connectors make lightning arrestors of sorts. They clamp voltage to the arc sustaining voltage (less than 100 volts), once they fire. If you are transmitting, r-f may keep the arc alive. Broadcast transmitters sense the arc and shut the transmitter down for an instant to quench the arc. Communications radios usually don`t bother as their transmissions are sporadic and usuallly short.

Remember, coax shield is impenetrable to r-f. D-C conducts right through. R-F does not due to skin effect.

In countless VHF antenna installations atop tall towers around rhe world we never used a Polyphaser or similar arrestor on the coax, yet never had damage to radio antenna circuits, even to transistorized radios.

We always used folded driven antenna elements. We grounded the coax at the top and bottom of the antenna tower. The tower due to its size has lower surge impedance and carries the bulk of the lightning current to ground. The tower is well grounded.

We found it necessary to use brute-force pi-filters on every power wire feeding the radio including the neutral wire. We used tower lighting chokes in the pi-filters to cary the current required to power the radios. We shunted the filter inputs and outputs to ground with MOV`s (across the a-c capacitors).This limited surge voltage on the radio and on the powerline. It eliminated all damage to the power supplies in the radios. These filters were found necessary only when transistor radios were introduced. Before that, the grounded antenna system sufficed for tube-type radios.

Best regards, Richard Harrison, KB5WZI

619. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 19:33:01 UTC
From: dplatt@radagast.org
Message-ID: <11st5vd8qeie574@corp.supernews.com>
Source record: 65179

In article <feqdnaCk27gJ3FPeRVn-qw@comcast.com>,
Amos Keag <A.K01@comcast.net> wrote:

>Ground Loop. Took time to find it though.
>
>The Astron RS-35 power supply connects utility power neutral to the
>case. It also connects the 13.8 volt return to the case. [This is
>commercial common practice but is prohibited in Military Systems
>design.]

yoicks!

The latter, I can believe is common practice.

The former - tying the powerline neutral directly to the case -
strikes me as being *extremely* contrary to electrical code and common
sense. It'd turn the supply into a deathtrap-waiting-to-happen if it
were plugged into an outlet having the hot and neutral reversed... and
these are (alas) not at all uncommon.

Now, having the utility power safety ground wired directly to the
case, I can very well believe... this is quite common.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

620. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 21:00:34 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns974F84565E2A9doldridgsprintca@64.59.135.159>
Source record: 65181

"Maarten" <maartenkoning2002@yahoo.com> wrote in
news:1137539656.712611.283320@g47g2000cwa.googlegroups.com:

> Hi,
>
> I seek some help, advise or suggestions on HF antenna's. I've bought a
> house with a plot of approx 330 x 80 ft / 100 x 23 mtr available for HF
> antenna's.
> But when I research HAM HF antenna's, home build or commercially
> available, I only find a lot of small, smaller and smallest HF
> antenna's (eg. wire antenna's, inverted V, T2DF) that don't take full
> advantage of the size of my land available. On the other end of the
> spectrum there are plans for very, VERY large antenna's like Rhombic
> and Beverage. For this size of antenna's my plot is to small.
>
> Do you have suggestions for HF antenna's I should check out? Let me
> know in this forum or pm me. Thanx in advance. 73

You have enough room for a full dipole at 1.8mhz. That's about 260 feet long and, if you feed it at the center with twinlead or 450 ohm ladder line or 600 ohm open wire line and run a tuner in the shack, it will also function as an extended double zepp on 3.5mhz. Fed this way, these antennas are incredibly frequency tolerant. You will be able to use it right up through 10 meters, but be aware that it will have an increasingly crazy pattern the higher you go. For best low-band performance, you also want it as high as you can get it, depending on whether your interest is DX or NVIS (near-vertical incidence nearby contacts on 160 and 80m). If DX is what you're after, you may want to consider some alternative strategy, depending on how much height you can achieve. But for NVIS, 85 feet is about optimum and the antenna will play well all the way down to around 30 feet. Below that you'll see some ground effects.

If DX is your goal, you may want to consider phasing verticals. On 160m, spacing them about 130 feet apart can make for a fairly steerable array. This would still leave you room for full-size radials on two sides of the antennas. If you use smaller, base-loaded verticals, then you can get away with even shorter radials. On 80m, you actually have a LOT of room.

I once put two Electrospace HF verticals 65 feet apart (E-W) on a lot quite a bit smaller than this. The Electrospace verticals played quite well with just 8 radials each of 32 foot length (about the same as the verticals' height). I brought equal length feedlines into the shack and made a delay box with 65 feet ELECTRICAL length of RG8X in it, cut up into pieces of 1/2, 1/4 and two of 1/8 the total length with dpdt

switches to but them in and out of the loop. Adding one more dpdt switch for reversing the delay to the other side completed the box. This antenna was VERY effective on 80m off its ends. On 40m (they were 80-40-20m verticals), the pattern was more bipolar, but sharper than the more oval pattern on 80m when the zero-delay setting was selected (for N-S) pattern. Similarly, it began to be a bit grassy on 20m. Still, the main lobe of it went the same place on every band for the same settings. And the thing was efficient and had a low radiation angle. It was easily S9+ in New Zealand and Syria from Halifax, NS on 75m. The only drawback was that, with short antennas like that, I had to either tune at the rig and put up with losses on the coax or go out and tune the antennas to cover the whole 80m band. If I had the real estate today, and the gear I have now to tune antennas with, I'd probably try something similar, though maybe in a four-square array for 80. 80 feet is a bit tight for one of those, but you MIGHT just squeeze it in if you're careful.

--
Dave Oldridge+
ICQ 1800667

621. Re: Antenna Seperation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 21:05:04 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns974F851572EB2doldridgsprintca@64.59.135.159>
Source record: 65182

Dan Andersson <dan@andersson.co.uk> wrote in
news:SJWcncusIopg6VDeSa8jmw@karoo.co.uk:

> Ted wrote:
>
>> I've been working with some fishing boats and these guys want to have
>> redundent VHF setups - two radios, two antennas. Only one would be
>> used and turned on. My concern is that the unused antenna could
>> couple as a parasitic element and effect SWR of the operating
>> antenna. Do I really need to worry about it? If so haw far apart do
>> the two antennas have to be?
>
>
> Ted,
>
> One way is to place the aerials at a "non 1/4 or 1/8" wavelength apart
> from each other but VHF is really not that bothered if you are more
> than a 1/4 away.
>
> If you really want to be sure, just tilt the spare aerial 90 degrees
> in the horizontal plane. That will limit the interaction even further.

And render it useless for calling the coast guard, since they are
vertically polarized (unless you hinge it to come up when deployed, but
that's one more thing to break). Basically just make sure they are more
than about 4 feet apart horizontally and that, if really close, the spare
radio is switched off the feeder unless it's needed. If they are mounted
vertically, one over the other, you don't even need to do that. But the
lower one will not be as efficient or effective as the higher one.

--
Dave Oldridge+
ICQ 1800667

622. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 21:34:16 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <GcKdnaz-_q3JKVPenZ2dnUVZ_tadnZ2d@comcast.com>
Source record: 65183

Dan Richardson wrote:

> On Wed, 18 Jan 2006 08:24:40 -0500, Amos Keag <A.K01@comcast.net>
> wrote:
>
>
>>The Astron RS-35 power supply connects utility power neutral to the
>>case. It also connects the 13.8 volt return to the case. [This is
>>commercial common practice but is prohibited in Military Systems
>>design.]
>
>
> You've tweaked my curiosity what does the military do?
>
> 73
> Danny, K6MHE

The general <no pun intended> Military design requirement is the the equipment cases carry no intentional or credible fault currents. [Therefore no inadvertant shocks, in MIL STD terminolgy no personnel RISK, from a hot chassis]. [RISK is assign for personnel, HAZARD for equipment]. Accordingly, the cases and circuit returns are isolated typically by a 500K resistor. There is one system ground point, not a distributed grounding system.

RF circuit design includes isolation between onbly for the output from the low level circuits. Coax shields, shielding on shielded circuits/wires carry no intentional currents and to the maximum extent possible no fault currents.

Example: the output stages of a 5 GHz telemetry transmitter is on a circuit board that is physically isolated from the low level stages and the power source. The isolation may be either capacitive or inductive coupled; in my last design [c.a. 1986] we used 1/4 wave stubs on the same board, top circuit to bottom circuit, woking against two separate returns [top surface base copper versus bottom surface base copper]

In the Nuclear safe environment for example, the primary and secondary of power transformers MUST be 100% isolated and each winding separately shielded with the shields connected independently to the chassis. Therefore a transformer short circuit on the primary cannot propagate through to the secondary. Or, a primary short to chassis cannot propagate to the secondary. And the design MUST include 100% absolute disconnect from primary power in the event of a transformer failure or power out of spec condition. The requirements go on and on and on ...

Bottom line, equipment cases carry no current, share no current carrying path [exception is RF output stages only].

So, the ASTRON RS 35 is not suitable for MIL usage. Now the ASTRON becomes 100% MIL suitable with the removal of just one [1] jumper in the supply [the connection from 13 volt return to chassis. The secondary of the PS is 100% isolated from the primary and the regulator circuits are 100% isolated from chassis]. But, the ICOM radios being powered also violate the MIL requirements and corrupt the system. Remember, HAM equipment is generally operated in COMMERCIAL circuits and must comply with local electrical codes.

623. ARRL Antenna Software CD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 22:05:38 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <SYyzf.3672$Hd4.2774@newsread1.news.pas.earthlink.net>
Source record: 65184

I was making inquiries about antennas a few weeks ago and someone mentioned the antenna software was available from the ARRL from either a separate CD or a CD in the Antenna Book. The post expired. Was it separate, and is their a description of the contents? I really don't need the book.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"Predictions are hard to make. Especially
about the future. -- Yogi Berra

Web Page: <home.earthlink.net/~mtnviews>

624. ladder line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 23:15:03 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1137626103.048692.259590@g43g2000cwa.googlegroups.com>
Source record: 65185

I have a aluminum square tubing tower 33' over an aluminium roof.
I want put a flat dipole feed with ladder line .

What happened whith al that aluminum?
I can use 450ohm cable in my case or is better use standard rg8?

Thanks
73 de Andy. ik7ytt

625. Separating Coax From Active Part Of A Receive Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 23:48:41 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <VJydnS77r6FLTlPeRVn-tA@comcast.com>
Source record: 65186

Hello:

Expect to put up an outside antenna for listening only (30 MHz and below)

Not sure if it will an Inverted-L or just a long horiz length.

Due to the way the property is laid out, and a few other considerations, I will have to bring the
coax from the Balun at the end of the antenna (at, or close to, ground level) back to the house which is about 40 feet away.

The easiest thing for me is to essentially run the coax some distance below at ground level, and directly under the active, higher, horiz length as it goes back towards the house.

How far should/must they be separated such that the coax doesn't influence the active horiz section of the antenna right
above it in any manner ? (listening only antenna).

(my concern I guess is that the coax shield which is grounded will act as another element, or an artificial ground, or... ?)

Thanks,
B.

626. Re: Separating Coax From Active Part Of A Receive Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-18 23:57:49 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <n8lts1tpe1tl6kpcme56qkur4itqqcjpq4@4ax.com>
Source record: 65187

On Wed, 18 Jan 2006 18:48:41 -0500, "Robert11" <rgsros@notme.com>
wrote:

>(my concern I guess is that the coax shield which is grounded will act as
>another element, or an artificial ground, or... ?)

Hi Bob,

If, as you say, it is already running along at ground level; then this
is not a bad thing. The shield should have no potentials on it -
which means it should act like it is at ground potential.

If it acts like another element, it is merely imitating the earth
already doing that. Upshot of this is that you will notice no
disturbance nor contribution of the shield.

73's
Richard Clark, KB7QHC

627. Re: ladder line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 00:44:40 UTC
From: Dan Richardson <>
Message-ID: <42ots1dfda41d157098pu5mr8emgkadg0p@4ax.com>
Source record: 65188

On 18 Jan 2006 15:15:03 -0800, "ik7ytt" <ik7ytt@gmail.com> wrote:

>I have a aluminum square tubing tower 33' over an aluminium roof.
>I want put a flat dipole feed with ladder line .
>
>What happened whith al that aluminum?
>I can use 450ohm cable in my case or is better use standard rg8?
>

Open line needs spacing from conductive surfaces to be 2ï¿½ to 3 times
the conductors spacing. In other words say the so called 450-ohm
window line whose spacing is 0.8" would need to be kept away from
condutive surface about 5-inches.

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

628. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 00:48:52 UTC
From: ml <m@di.net>
Message-ID: <m-B40A62.19484718012006@news.verizon.net>
Source record: 65189

Sorry your email address dosn't work but thanks for clarifing the
hookup i must have missread the original statement you made whereby i
thought you said the pro was completely disco i totally understand if
it had anything connected that explains it!!

however you confused me more so, now that you said the pro getting fried
somehow 'saved' your other gear from being damaged... i can't see how
that happened unless you feel the rig it self actually absorbed ALL the
energy i presume the odds of that are slim

so can you help unconfuse me??

and it was great to read about how the mil does stuff pretty cool

again sorry about your damage hope you had arrl rig insurrance

m

In article <feqdnaCk27gJ3FPeRVn-qw@comcast.com>,
Amos Keag <A.K01@comcast.net> wrote:

> ml wrote:
>
> > Hi
> >
> > FYI, seems your email addr here dosn't work, if it's a real one
> >
> > Dear Amos
> >
> > i saw your post and hope you wouldn't mind if i asked you a quick
> > quesiton
> >
> >
> > Your Icom that was damaged, was unplugged from everything so how did
> > lightning 'get to it'??
> >
> > I was kinda distrubed trying to figure it out
> > \
>
> Ground Loop. Took time to find it though.
>
> The Astron RS-35 power supply connects utility power neutral to the
> case. It also connects the 13.8 volt return to the case. [This is
> commercial common practice but is prohibited in Military Systems
> design.] Although everything on the operating table was isolated from
> the utility power and external antennas, everything was connected

> together by coax braid, connections to the operating position common
> 'ground', and the 13.8 volt return.
>
> Remember, this strike caused large area damage. Close to 50 homes
> suffered some damage. Several homes took up to 6 weeks to have their
> internet functioning again.
>
> The lightning strike tripped all [ALL] ground fault interruptors in the
> house. The ground loop in my system connected chassis and power returns
> and coax cable together. The weak link were circuit boards in my 756 Pro
> II filter and tuner. The boards VAPORIZED. Smoke all over the place.
> Pungent smell, etc. That failure protected my IC-746, Kenwood TM-G707,
> etc from damage. [Expensive fuse!!]
>
> I wonder if it also protected my swimming pool pump and heater from
> damage <grin>?

629. Re:Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 01:01:28 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43cecdb8@fidonet.org>
Source record: 65190

"Richard Harrison" bravely wrote to "All" (18 Jan 06 12:17:51)
--- on the heady topic of "Re:Amoskeag Lightning Arrestor Questions"

RH> From: richardharrison@webtv.net (Richard Harrison)
RH> Xref: core-easynews rec.radio.amateur.antenna:222822

RH> Asimov wrote:
RH> "An acquaintance had a direct hit on his tower and even his tv`s
RH> remote control head."

There seems to be a problem with the compression. I wrote "remote
control fried." not "head."!

RH> Did he hear a voice boom from the clouds saying: "Dammit! Missed
RH> again!"?

RH> A good tower ground should mitigate lightning`s fiversion through a TV

What is a "fiversion"... ah "diversion", right! Damn that compressor
is F&^^%$@@**

RH> remote control. But, I`ve seen stories of "ball lightning" chasing
RH> about inside a house.

That is what he said. Briefly saw a fireball wizz around the room.

A*s*i*m*o*v

630. Re: ladder line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 01:24:54 UTC
From: Dan Richardson <>
Message-ID: <ciqts1dagvjsf4s4vb4hhuka1dq6edsh1m@4ax.com>
Source record: 65191

On Wed, 18 Jan 2006 16:44:40 -0800, Dan Richardson <> wrote:

>On 18 Jan 2006 15:15:03 -0800, "ik7ytt" <ik7ytt@gmail.com> wrote:
>
>>I have a aluminum square tubing tower 33' over an aluminium roof.
>>I want put a flat dipole feed with ladder line .
>>
>>What happened whith al that aluminum?
>>I can use 450ohm cable in my case or is better use standard rg8?
>>
>
>Open line needs spacing from conductive surfaces to be 2ï¿½ to 3 times
>the conductors spacing. In other words say the so called 450-ohm
>window line whose spacing is 0.8" would need to be kept away from
>condutive surface about 5-inches.
>
OOPS! Make that 3"

Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

631. Re: WTB Outbacker Mobile HF Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 01:37:20 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <I0Czf.1873$jn2.114@bignews3.bellsouth.net>
Source record: 65192

"Mike Coslo" <mremovethiscoslo@adelphia.net> wrote in message
news:Ge2dneQFMt0b8FXeRVn-hw@adelphia.com...
> Jerry wrote:
>> "kd5sak" <kd5sak@sbcglobal.net> wrote in message
>> news:Qjixf.119$H71.20@newssvr13.news.prodigy.com...
>>
>>>"Bill Turner" <noway@nohow.com> wrote in message
>>>news:dq498d016ak@enews4.newsguy.com...
>>>
>>>>ORIGINAL MESSAGE:
>>>>I used to think that way too. Only bought the cheap stuff until one day
>>>>someone gave me a bottle of Glenlivet scotch. I rarely buy it because I
>>>>don't want to mortgage the house, but now I *do* know the difference.
>>>>:-)
>>>>
>>>>Bill, W6WRT
>>>>
>>>>
>>>
>>>Have to agree, bought some really high dollar Scotch for New Years Eve in
>>>1954 while in Japan. Flavor wasn't the same but it was as smooth as
>>>chocolate milk. I was asleep before midnight. Had to quit that sort of
>>>thing though, my Dad was alcoholic and I figured I'd probably inherited
>>>the gene.
>>>
>>>Harold Burton
>>
>>
>> That's just it for me. I don't want to run the risk, and after seeing
>> what it did to friends and relatives as well, it made up my mind in high
>> school. Tried it. It tasted AWFUL no matter what, so I prefer a Coke. Oh,
>> if someone insists I take a sip with him, I will. But since I simply do
>> not like the taste of alcoholic drinks, I simply drink enough to satisfy
>> the buyer and let it go. I just don't like it the same way some people
>> don't like broccoli or cauliflower and I never will. :)
>
>
> Well good for you if you don't like Little John Barleycorn. But I find it
> ironic that you consider that cola beverages taste good. I always
> considered them as probably what carbonated battery acid tastes like.
>
> And the caffeine in them is also a drug, of which a lot of people take too
> much of.
>

> - 73 de Mike KB3EIA -
>
> ..... at this time sipping on small glass of Akvavit....

What? You mean I have to give up coffee, too? LOL!

73

J

632. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 01:40:20 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <o76dneoDssudc1PeRVn-rA@comcast.com>
Source record: 65193

Dave Platt wrote:

> SNIPPED
>
> *yoicks*!
>
> The latter, I can believe is common practice.
>
> The former - tying the powerline neutral directly to the case -
> strikes me as being *extremely* contrary to electrical code and common
> sense.

It happens at the service panel! White [COMMON] is connected to the non current carrying bare wire at a many input terminal block. The block is then connected to an 8 foot ground rod installed by the utility or your electrician.

It'd turn the supply into a deathtrap-waiting-to-happen if it
> were plugged into an outlet having the hot and neutral reversed... and
> these are (alas) not at all uncommon.

Agree, I found three miswired circuits in this house. I was present at the house inspection and ran the tests myself. The mis-wiring was corrected the day we moved in. [Radio Shack sells a simple tester for this. It is worth checking every circuit in your house or apartment].

>
> Now, having the utility power safety ground wired directly to the
> case, I can very well believe... this is quite common.

Maybe my terms are not up to date.

My electrical service connection is 3 wire 240 volts AC at 60 Hz. Within the distribution panel RED is connected to one feed; BLACK is connected to the other feed and white is connected to the common connection [return]. The common connection is then distributed throughout the house as the bare wire in standard wiring. The common, white and return, connection is connected to an external earth connection [ground] by an 8 foot ground rod.. So, the WHITE wire serves as return for both RED and BLACK circuits and has a single earth connection. So, your 3 prong socket contains connections to power as follows: HOT [either RED or BLACK] circuit, RETURN [WHITE] and GREEN [GROUND] [supposedly zero current carrying. A GFI works on this part of the connection].

In the ASTRON RS 35 the primary wiring has the GREEN connected to the chassis. The BLACK/WHITE go to the transformer primary. This is fine.

The secondary, transformer isolated, has the 13.8 volt return connected to the chassis. It is now possible for the chassis to become part of the current carrying circuit, 13.8 volt return to utility WHITE wire to groud wire. The 13.8 volt return now runs to the ICOM 756 Pro II, ICOM 746 and Kenwood TM-G707. The cases of the three radios and the ASTRON are connected to a common return on the operating table [1/2 inch copper pipe that connects directly to the service panel common return/ground point]. The cases of the three radios are connected together by the braid on the various lengths of coax and the 13.8 volt return. ERGO, a ground loop among the 13.8 volt return, the coax braid, equipment cases and the utility ground.

With a nearby lightning strike that blew the utility 3 phase transformer and affected approximately 50 consumers there are several possible causes of trouble. Among these are imbalance in utility service [i.e. the 240 into the house becomes seriously imbalanced] a lightning induced magnetic transient that couples to all ground loops, or my system was still connected to antennas and power.

I had ALL connections to antennas and power plugs removed except the 1/2 inch copper pipe earth connection at the service panel. My neighbors lost garage door openers, multiple tv sets, numerous telephone circuits, numerous internet circuits, COMCAST had to rewire approximately 1/4 mile of cable tv in front of the house, several homes lost expensive stereo and sound lab setups. In my house all ground fault interuptors activated. And two circuits in my PRO II exploded to charcoal with dust and stench. The LAN blew up, and one computer was lost.

My station was the equivalent of being mounted on a copper sheet, each chassis connected to the copper sheet with bond wires, the 13.8 VDC return connected to the copper sheet [making a loop into the circuits] and the copper sheet was/is directly connected to earth/ground at the power utility panel.

Since I was not connected to POWER or antennas, and the connection to utility common and earth ground are installed to code [circa 1978], I concluded a ground loop that I subsequently found and measured [after the fact of course] was the susceptibility.

Conclusion: Nearby or direct strike lightning causes havoc. Solution: have good insurance. I recovered replacement costs for all except the depreciated computer. I have a specific INSURANCE SCHEDULE on my radio and camera equipment.

>

633. Re: ARRL Antenna Software CD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 02:36:56 UTC
From: sailtamarack@yahoo.ca
Message-ID: <1137638216.907751.14680@g14g2000cwa.googlegroups.com>
Source record: 65194

There are quite a few programs on the CD that is included with the ARRL Antenna handbook. What exactly are you looking for?? Some of the programs are available from other sources and some like ARRL EZNEC were developed specifically to go with the book.

Roger

634. Re: Dick Smith Radio Direction Finder - Docs now in PDF

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 04:42:24 UTC
From: Glenn McAllister <"(callsign)"@orcon.net.nz>
Message-ID: <43CF18B0.70E8@orcon.net.nz>
Source record: 65195
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Scanned and kindly converted to PDF by Ken, ZL1WKT.

Hosted by Al at
http://www.webdingers.com/K6345RadioDirectionFinder.pdf
and also by me at
http://www.freewebs.com/cqdx/dserdfk6345.htm

Glenn McAllister wrote:
>
> My email address is my callsign at orcon dot net dot enn zed
>
> de Glenn ZL2TLD

635. Re: ARRL Antenna Software CD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 05:11:53 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <tcFzf.554$Dk.218@newsread3.news.pas.earthlink.net>
Source record: 65196

sailtamarack@yahoo.ca wrote:

> There are quite a few programs on the CD that is included with the ARRL
> Antenna handbook. What exactly are you looking for?? Some of the
> programs are available from other sources and some like ARRL EZNEC were
> developed specifically to go with the book.
>
> Roger
>
Nothing in particular, but it seemed as though it might be the best set of
them, so having it would be useful. My questions still remain. What does it
have on it and can it be bought apart from the book?

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"Predictions are hard to make. Especially
about the future. -- Yogi Berra

Web Page: <home.earthlink.net/~mtnviews>

636. Re: Amoskeag Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 06:41:33 UTC
From: dplatt@radagast.org
Message-ID: <11sud4trs50t074@corp.supernews.com>
Source record: 65197

In article <o76dneoDssudc1PeRVn-rA@comcast.com>,
Amos Keag <A.K01@comcast.net> wrote:
>Maybe my terms are not up to date.
>
>My electrical service connection is 3 wire 240 volts AC at 60 Hz. Within
>the distribution panel RED is connected to one feed; BLACK is connected
>to the other feed and white is connected to the common connection
>[return]. The common connection is then distributed throughout the house
>as the bare wire in standard wiring. The common, white and return,
>connection is connected to an external earth connection [ground] by an 8
>foot ground rod.. So, the WHITE wire serves as return for both RED and
>BLACK circuits and has a single earth connection. So, your 3 prong
>socket contains connections to power as follows: HOT [either RED or
>BLACK] circuit, RETURN [WHITE] and GREEN [GROUND] [supposedly zero
>current carrying. A GFI works on this part of the connection].
>
>In the ASTRON RS 35 the primary wiring has the GREEN connected to the
>chassis. The BLACK/WHITE go to the transformer primary. This is fine.

Yes, that's all fine, and per code.

In US wiring terminology, the green wire is "ground". It's present
entirely for safety purposes - it's not supposed to carry any current
back to the panel during normal operation. It carries current only
in the event of a fault. It's what the external chassis should be
tied to, for metal-chassis equipment with a three-wire cord.

Black is "hot". I'm told that this color was chosen because black is
traditionally the color of death.

White is "neutral". It's the current return for the hot supply. It
should never be tied to the chassis, for two reasons:

[1] The occasional hot/ground reversal thanks to an mistake in the
house wiring. You really don't want your chassis floating at 120 VAC
above local ground.

[2] The neutral pin at the outlet can be pulled several volts above
ground voltage, if some load on that circuit is drawing a healthy
number of amperes, due to I^2*R drop in the house wiring. If the
chassis were tied to neutral, and this occurred, someone might
manage to get a shock if they touched both the chassis and a
truly-grounded pipe or wire.

>With a nearby lightning strike that blew the utility 3 phase transformer
>and affected approximately 50 consumers there are several possible

>causes of trouble. Among these are imbalance in utility service [i.e.
>the 240 into the house becomes seriously imbalanced] a lightning induced
>magnetic transient that couples to all ground loops, or my system was
>still connected to antennas and power.
>
>I had ALL connections to antennas and power plugs removed except the 1/2
>inch copper pipe earth connection at the service panel. My neighbors
>lost garage door openers, multiple tv sets, numerous telephone circuits,
>numerous internet circuits, COMCAST had to rewire approximately 1/4 mile
>of cable tv in front of the house, several homes lost expensive stereo
>and sound lab setups. In my house all ground fault interuptors
>activated. And two circuits in my PRO II exploded to charcoal with dust
>and stench. The LAN blew up, and one computer was lost.

Ouch! My condolences!

When a strike of that magnitude occurs nearby, I have a feeling that
the Law of Chaos prevails. The current will do whatever it (censored)
well wants to. Even some equipment which is entirely unplugged might
take enough of a pulse via induction to suffer some damage to
sensitive components.

Glad to hear that you managed to recover the cost of replacement!

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

637. Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 12:52:38 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <CdSdnW2_R4YMFlLenZ2dnUVZ_t-dnZ2d@comcast.com>
Source record: 65198

Hello:

Very interesting comments on my question of a few days ago re lightning arrestors.
Thank you all for trying to educate me on this subject; really find it confusing.
Thread is a bit buried by now, so thought I'd start another one.

I fully understand that the best approach is to (also) just disconnect everything.

But if not around, here's what I don't understand and concerns me.

Assuming a "nearby" strike, and a subsequent emp pulse that's picked up by a receive only antenna
wire strung outside:

No matter how quickly an arrestor's gas tube fires, and diverts the pulse to a good RF ground, the fact that it takes
a few hundred volt threshold to fire makes "any" gas tube type of arrestor almost worthless re the protection of a receiver whose front end certainly won't take a few hundred volts, even for u-seconds, probably.

Do you agree with this statement, or am I missing something ?

Thanks,
Bob

638. HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 14:04:29 UTC
From: john.minkjan@gmail.com
Message-ID: <1137679046.849697.239010@g44g2000cwa.googlegroups.com>
Source record: 65199

Question:

Is you are making a HF-ground (radials just below the surface) Should these radials be insulated or not?

73 John

639. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 14:38:29 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <gk8vs15alefmq1i29mlr6i8pad4j9304du@4ax.com>
Source record: 65200

On 19 Jan 2006 06:04:29 -0800, john.minkjan@gmail.com wrote:

>Question:
>
>Is you are making a HF-ground (radials just below the surface) Should
>these radials be insulated or not?
>
>73 John

In one of my antenna books, by W6SAI, he recommended uninsulated wire
for buried radials.

bob
k5qwg

640. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 15:00:32 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <kQNzf.500863$084.442782@attbi_s22>
Source record: 65201

To cut down on copper corrosion, I use enameled #14 magnet wire.

"Bob Miller" <NOSPAM@neosoft.com> wrote in message
news:gk8vs15alefmq1i29mlr6i8pad4j9304du@4ax.com...
> On 19 Jan 2006 06:04:29 -0800, john.minkjan@gmail.com wrote:
>
>>Question:
>>
>>Is you are making a HF-ground (radials just below the surface) Should
>>these radials be insulated or not?
>>
>>73 John
>
> In one of my antenna books, by W6SAI, he recommended uninsulated wire
> for buried radials.
>
> bob
> k5qwg

641. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 15:02:55 UTC
From: Dan Richardson <>
Message-ID: <67avs11ooqs8m92a839pjlql4hlcqhqsiq@4ax.com>
Source record: 65202

On 19 Jan 2006 06:04:29 -0800, John wrote:

>Question:
>
>Is you are making a HF-ground (radials just below the surface) Should
>these radials be insulated or not?
>

It makes no real noticeable difference in operation, however,
insulated wire will not deteriorate as fast in the ground.

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

642. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 15:38:05 UTC
From: w_tom <w_tom1@usa.net>
Message-ID: <1137685085.909628.236790@z14g2000cwz.googlegroups.com>
Source record: 65203

Have you never static shocked a radio antenna? Why was that radio not damaged by up to 18,000 volts? Radios have internal protection which is why those 10,000+ volts did not damage. Parameters are voltage ... and time.

Reason why a well earthed protection 'system' protect electronics even from direct strikes includes internal electronics protection, fast response of all protectors, and how well a protection system is earthed. With properly earthed protection, then protection internal to electronics is not overwhelmed; damage does not occur.

Disconnecting without earthing is not a best protection method. Ham radio operators in the early days would disconnect an antenna lead, put that connector inside a mason jar, and still suffer damage. When that antenna lead was earthed, then damage stopped. Disconnecting - trying to stop a destructive transient - works when the transient has a better path to earth. Most essential is to provide a better path to earth. Disconnecting would only enhance a good protection system. But disconnecting without a non-destructive path to earth has been demonstrated not sufficient. Idea is to keep protection inside that electronics from not being overwhelmed even by a direct lightning strike.

What was more than sufficient to protect telephone switching stations - connected to overhead wires everywhere in town? Gas discharge tubes. We have since obsoleted that technology (depending on other parameters) twice over. But response of a gas discharge tube is not 'too slow'. Too often, people will blame 'slow GDT' for damage when they failed to confirm the most critical component in a protection system - earth ground and connections to that earthing 'system'.

Robert11 wrote:
> Very interesting comments on my question of a few days ago re lightning
> arrestors.
> Thank you all for trying to educate me on this subject; really find it
> confusing.
> Thread is a bit buried by now, so thought I'd start another one.
>
> I fully understand that the best approach is to (also) just disconnect
> everything.
>
> But if not around, here's what I don't understand and concerns me.
>
> Assuming a "nearby" strike, and a subsequent emp pulse that's picked up by a
> receive only antenna wire strung outside:

>
> No matter how quickly an arrestor's gas tube fires, and diverts the pulse to
> a good RF ground, the fact that it takes
> a few hundred volt threshold to fire makes "any" gas tube type of arrestor
> almost worthless re the protection of a receiver whose front end certainly
> won't take a few hundred volts, even for u-seconds, probably.
> ...

643. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 16:28:53 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehew7u3qjhj000@cnews.newsguy.com>
Source record: 65204

john.minkjan@gmail.com wrote:

> Question:
>
> Is you are making a HF-ground (radials just below the surface) Should
> these radials be insulated or not?
>
> 73 John
~~~~~~

Insulated will reduce corrosion. Don't bury them any deeper than
necessary. Lying on top of the ground is better. Dirt is not a good
antenna element.

Bill, W6WRT
~~~~~~

644. looking for antenna recommendation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 17:18:11 UTC
From: "greg@littlebear.com" <greg@littlebear.com>
Message-ID: <1137691091.471022.293300@z14g2000cwz.googlegroups.com>
Source record: 65205

I'm looking for a recommendation for an external antenna to use with my

Yaesu VX-7R handheld.

This antenna would spend most of its life on a bicycle (on a rear rack behind the seat), which is how I commute to/from work. However, I'd like to be able to use it occasionally on a car/truck so I'm thinking a

magnetic base would be the most flexible.

Ideally it would cover all of the VX-7R's bands, or at least the 6M/2M/70CM bands and it would have a cable with an SMA connector at the

end.

Ideally it would be something like Diamond's CR627B antenna (http://www.rfparts.com/diamond/cr627b.html) but without needing a triplexor and with a magnet mount.

Now I realize that such a thing might not exist which is why I'm open to suggestions that I drop the 6M band requirement which would lose me the grounding requirement which would lose me the restriction against magnet mount.

Ideas?

greg

645. Re: Speaking of A.M. reception

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 17:50:03 UTC
From: Frank <Frank.21whjv@news.radiobanter.com>
Message-ID: <Frank.21whjv@news.radiobanter.com>
Source record: 65212

I've been experimenting with AM loop antennas, they are directional, and you can "null out" staions by turning the antenna. I have three that are about two feet on each side, and one that is four feet on each side. I use varactors diode to resonate the antenna. I use the antenna to get rid of mid band noise on the AM band. I turn the antenna so it's broad side to east and west.

I've been experimenting with building my own AM receiver, and just found a source for LM3820 chips, which I ordered last night. I need a receiver that is voltage tunable, and covers am, and at least some shortwave. I made one cricuit last weekend using an NE602 as mixer/oscillator, the MC1350 as the IF amp, an FET detector, and an LM386 audio amp. It covered AM, and 49 through 31 meters. That worked on the breadboard, but not when I put it on perf board. Must be my layout technique!

BTW DE KC0FS

To me, it seems like it's the computer dorks that want, and think AM is a dead format. They want nothing but internet crapola. Everything is going digital because it's a cheap, albeit crappy, way to do almost anything.

Frank

--
Frank

646. Re: ARRL Antenna Software CD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 17:52:11 UTC
From: sailtamarack@yahoo.ca
Message-ID: <1137693131.696990.131700@g47g2000cwa.googlegroups.com>
Source record: 65206

The list of software on the CD may be found @ http://tinyurl.com/36osw

The CD is only available with the book because it contains pdfs of the entire book. I purchased a copy of the book and find it to be a thorough and informative publication. It is available for $40 at Amazon (including shipping).

Roger

647. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 19:26:12 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <qJRzf.8223$924.201431@news20.bellglobal.com>
Source record: 65209
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"JJSomar" <jjsomar@gmx.de> wrote in message
news:dqoe9l$2ig$1@news.uni-paderborn.de...
> Paypal Magic !!!!! Earn ?5000 within 2 weeks with
ease!!!!!.
>
>
> Read this message until the end, and you will find out how the money flows
in easy !!!!.
> Follow the steps and it WILL work. Trust me !!!!!.
>
> It's NOT illegal and it is NOT a scam !!!!!.
>

It's *nice* to see another sucker join the bottom of the pyramid scheme.
I wonder when the structure will collapse . . . .

Tom the Canuck.

648. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 19:36:43 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <ehqvs15nfbeceg68lpkj26o47s4te3d1ad@4ax.com>
Source record: 65207

If you are also going to use the radials for a lightning protection
ground then bare wire is much better.

73
Gary K4FMX

On 19 Jan 2006 06:04:29 -0800, john.minkjan@gmail.com wrote:

>Question:
>
>Is you are making a HF-ground (radials just below the surface) Should
>these radials be insulated or not?
>
>73 John

649. Re: FS: Heathkit Manuals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 19:36:44 UTC
From: fmmck@aol.com
Message-ID: <fmmck-1901061436440001@aca705f8.ipt.aol.com>
Source record: 65208

In article <4303qhF1kq9u9U1@individual.net>, Reinhard Zwirner
<reinhard_zwirner@web.de> wrote:

> > good that these stuff is available from half a dozen sites for free...
>
> Where?
>
> Very interested

Reinhard-

I was hoping someone would answer.

These sites may not be what you're looking for but contain some references
to Heath. Check out:

http://www.circuitarchive.co.uk/heath.htm
http://bama.sbc.edu/
http://www.d8apro.com/heath1.htm
http://www.mods.dk/

73, Fred, K4DII

650. what are Microwave Antennas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 19:51:31 UTC
From: Bug3 <NWatson03@gmail.com>
Message-ID: <1137700291.373977.273720@g44g2000cwa.googlegroups.com>
Source record: 65210

Wondering what are microwave antennas, what do they do, how do they work, etc?
Are they used in wirless laptops, etc.?
I can use a lot of information on this subject, I have to wirte 3 or 4 pages on this and don't really know much about them need to read as much as possible.

Thanks:)
All information is great!

651. Re: Dick Smith Radio Direction Finder - Docs now in PDF

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 20:43:42 UTC
From: Kev <kevcat@optunet.com.au>
Message-ID: <43cff9fe$0$10954$afc38c87@news.optusnet.com.au>
Source record: 65211
Cross-posted to: alt.ham-radio.vhf-uhf,alt.radio.scanner,aus.radio.amateur.misc,aus.radio.cb,aus.radio.scanner,rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,rec.radio.scanner

Glenn McAllister wrote:

> Scanned and kindly converted to PDF by Ken, ZL1WKT.
>
> Hosted by Al at
> http://www.webdingers.com/K6345RadioDirectionFinder.pdf
> and also by me at
> http://www.freewebs.com/cqdx/dserdfk6345.htm
>
> Glenn McAllister wrote:
>
>>My email address is my callsign at orcon dot net dot enn zed
>>
>>de Glenn ZL2TLD

Fantastic
Thanks for doing that

Now at least I can see what's what in this thing

Cheers

Kev

652. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 21:05:58 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <bbvvs1dlamok1gj4pdnlncdh0cfi84q0ee@4ax.com>
Source record: 65213

On 19 Jan 2006 16:28:53 GMT, "Bill Turner" <noway@nohow.com> wrote:

>john.minkjan@gmail.com wrote:
>
>> Question:
>>
>> Is you are making a HF-ground (radials just below the surface) Should
>> these radials be insulated or not?
>>
>> 73 John
>~~~~~~
>
>Insulated will reduce corrosion. Don't bury them any deeper than
>necessary. Lying on top of the ground is better. Dirt is not a good
>antenna element.

Bill, I often see the assertion that it is better to not bury radials.

Can you point me to any reputable texts or experimental evidence that shows the difference between shallow buried radials and radials lying "on top of the ground"?

Corrosion is often cited as a reason to use insulated buried radials, but is corrosion a significant risk in most locations. We widely use buried copper water pipes here, and copper clad earthing electrodes for the MEN power supply earthing, yet they don't seem to suffer significant corrosion in most places.

It seems to me that insulated buried radials are likely to be less effective in a lightning protection role.

Owen
--

653. Re: what are Microwave Antennas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 21:13:12 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrndt0078.gi0.bit-bucket@shell.config.com>
Source record: 65214

On 19 Jan 2006 11:51:31 -0800, Bug3 wrote:
> Wondering what are microwave antennas, what do they do, how do they
> work, etc?
> Are they used in wirless laptops, etc.?
> I can use a lot of information on this subject, I have to wirte 3 or 4
> pages on this and don't really know much about them need to read as
> much as possible.

Just send me your teacher's email address and I'll submit the report
directly.

Also, send me your English teacher's email address.

You'll find the world's biggest freakin' FAQ site here:

http://www.google.com/search?as_epq=microwave+antenna

654. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 21:22:26 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9750880B39C41doldridgsprintca@64.59.135.159>
Source record: 65215

"Bill Turner" <noway@nohow.com> wrote in news:xn0ehew7u3qjhj000
@cnews.newsguy.com:

> john.minkjan@gmail.com wrote:
>
>> Question:
>>
>> Is you are making a HF-ground (radials just below the surface) Should
>> these radials be insulated or not?
>>
>> 73 John
> ~~~~~~
>
> Insulated will reduce corrosion. Don't bury them any deeper than
> necessary. Lying on top of the ground is better. Dirt is not a good
> antenna element.

Electric fence wire is adequate and cheap. I use it right on the surface,
as you say. It's a bit springy so you may have to work it to straighten
it, though.

--
Dave Oldridge+
ICQ 1800667

655. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 21:55:58 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <OVTzf.501279$084.368852@attbi_s22>
Source record: 65216

Ok, but do you use steel or aluminum fence wire? Galvanized steel fence wire will rust in a few years.

"Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message news:Xns9750880B39C41doldridgsprintca@64.59.135.159...
>
> Electric fence wire is adequate and cheap. I use it right on the surface,
> as you say. It's a bit springy so you may have to work it to straighten
> it, though.
>
> --
> Dave Oldridge+
> ICQ 1800667

656. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 22:27:33 UTC
From: hhc314@yahoo.com
Message-ID: <1137709653.497618.151660@o13g2000cwo.googlegroups.com>
Source record: 65217
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Tom, realize that many newsgroup readers are so young that they are not
familiar with the Ponzi scam. Otherwise they would not buy programs
that perpetuate the scheme (or scam).

http://home.nycap.rr.com/useless/ponzi/

Harry C.

657. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 22:36:25 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <d51a1$43d01476$471d24c1$14966@ALLTEL.NET>
Source record: 65218
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Now this is not a scam, simply send $1.00 from your paypal to
w4jle@w4jle.com. I won't do anything for you, you will get nothing in
return, and if I get enough suckers to bite I will go to OUTBACK Steak House
and enjoy a meal on you.

At least you know this won't cost more than a dollar, you need not worry
about getting screwed, I have already told you up front you are. So get your
guarenteed low cost screw job today!

<hhc314@yahoo.com> wrote in message
news:1137709653.497618.151660@o13g2000cwo.googlegroups.com...
> Tom, realize that many newsgroup readers are so young that they are not
> familiar with the Ponzi scam. Otherwise they would not buy programs
> that perpetuate the scheme (or scam).
>
> http://home.nycap.rr.com/useless/ponzi/
>
> Harry C.
>

658. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 22:46:02 UTC
From: GBrown <gkbrown@gwi.net>
Message-ID: <XP-dnbRI__AZiE3enZ2dnUVZ_t-dnZ2d@gwi.net>
Source record: 65219
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Do I get a seniors discount?
.
.
.
"Fred W4JLE" <w4jle@w4jle.com> wrote in message
news:d51a1$43d01476$471d24c1$14966@ALLTEL.NET...
> Now this is not a scam, simply send $1.00 from your paypal to
> w4jle@w4jle.com. I won't do anything for you, you will get nothing in
> return, and if I get enough suckers to bite I will go to OUTBACK Steak
House
> and enjoy a meal on you.
>
> At least you know this won't cost more than a dollar, you need not worry
> about getting screwed, I have already told you up front you are. So get
your
> guarenteed low cost screw job today!
>
> <hhc314@yahoo.com> wrote in message
> news:1137709653.497618.151660@o13g2000cwo.googlegroups.com...
> > Tom, realize that many newsgroup readers are so young that they are not
> > familiar with the Ponzi scam. Otherwise they would not buy programs
> > that perpetuate the scheme (or scam).
> >
> > http://home.nycap.rr.com/useless/ponzi/
> >
> > Harry C.
> >
>
>

659. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 23:00:33 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <e88ac$43d01a1f$471d24c1$11563@ALLTEL.NET>
Source record: 65220
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Of course, Seniors over 55 may get their guarenteed screwing fo $.90 a
whopping 10% discount, again send your payment to w4jle@w4jle.com DO IT
TODAY! This offer may end at any time...

"GBrown" <gkbrown@gwi.net> wrote in message
news:XP-dnbRl__AZiE3enZ2dnUVZ_t-dnZ2d@gwi.net...
> Do I get a seniors discount?
> .
> .
> .
> "Fred W4JLE" <w4jle@w4jle.com> wrote in message
> news:d51a1$43d01476$471d24c1$14966@ALLTEL.NET...
> > Now this is not a scam, simply send $1.00 from your paypal to
> > w4jle@w4jle.com. I won't do anything for you, you will get nothing in
> > return, and if I get enough suckers to bite I will go to OUTBACK Steak
> House
> > and enjoy a meal on you.
> >
> > At least you know this won't cost more than a dollar, you need not worry
> > about getting screwed, I have already told you up front you are. So get
> your
> > guarenteed low cost screw job today!
> >
> > <hhc314@yahoo.com> wrote in message
> > news:1137709653.497618.151660@o13g2000cwo.googlegroups.com...
> > > Tom, realize that many newsgroup readers are so young that they are
not
> > > familiar with the Ponzi scam. Otherwise they would not buy programs
> > > that perpetuate the scheme (or scam).
> > >
> > > http://home.nycap.rr.com/useless/ponzi/
> > >
> > > Harry C.
> > >
> >
> >
>
>

660. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 23:21:27 UTC
From: SINYpyro <*removethis*vanquish@earthlink.net>
Message-ID: <X9Vzf.3243$vU2.2707@newsread3.news.atl.earthlink.net>
Source record: 65221
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Kill yourself?

"JJSomar" <jjsomar@gmx.de> wrote in message
news:dqoe9l$2ig$1@news.uni-paderborn.de...
> Paypal Magic !!!!! Earn ?5000 within 2 weeks with
> ease!!!!!.
>
>
> Read this message until the end, and you will find out how the money flows
> in easy !!!!.
> Follow the steps and it WILL work. Trust me !!!!!.
>
> It's NOT illegal and it is NOT a scam !!!!!.
>
>
> The only thing you need is : - E-MAIL ACCOUNT
> - PREMIER (FREE) or BUSINESS PAYPAL ACCOUNT
> - ?5 on this account (The only investment)
> - 30 minutes of your time
>
> There is no limit on how much money you can recieve, and you haven't got
> anything to lose with this Business program. I will explain how it works
> !!!!!.
>
>
> Follow these 4 easy steps and it WILL work !!!!!.
>
>
> STEP 1 : SIGN UP FOR A FREE PAYPAL ACCOUNT !!!!!.
>
> Paypal is a free and safe way to pay and receive money on the
> Internet.
> Creating a account is as easy as creating a MSN account.
> Copy and paste the next line in your Internet browser and sign up.
> HTTP://WWW.PAYPAL.COM
>
> Be sure to sign up for a FREE Premier or Business account and not
> for
> a Personal account. You cannot receive CREDITCARD payments with
> a Personal account and we can't have that. Do we !!!!!.
>
>
> STEP 2 : SENT ?5 TO YOUR PAYPAL ACCOUNT

>
> This is your only investment to receive the money with ease.
>
> With your Paypal account, send ?1 to each e-mailadres listed
> below.
> !!!!! IMPORTANT !!!!! Be sure to use this SUBJECT : *PLEASE PUT ME
> ON
> YOUR EMAIL LIST* when you send the money.
>
> 1) dexxatol@netcourrier.com
> 2) armygirl8568@hotmail.com
> 3) bovenpietje@hotmail.com
> 4) tjoewonli@hotmail.com
> 5) jjsomar@gmx.de
>
>
> STEP 3 : PUT YOUR E-MAILADRES ON THE LIST
>
> After you have send ?1 to each e-mailadres, put your e-mailadres
> on the
> 5th place. Remove e-mailadres number 1, and move each e-mailadres
> 1
> step up the ladder. !!!!! IMPORTANT !!!!! BE SURE THAT THE
> E-MAILADRES
> YOU USE IS THE SAME AS YOU USED TO SIGN UP AT PAYPAL.
>
> Remember that this is LEGAL. You are creating a service : an
> e-mail
> servicelist.
>
>
> STEP 4 : UPLOAD OR COPY THIS MESSAGE TO NEWSGROUPS, FORUMS ETC
>
> There are 32.000 newsgroups. Upload or copy this message to at
> least
> 200 newsgroups or forums etc, but remember that the more your
> upload
> the more people will see your message and the MORE MONEY WILL FLOW
> IN.
>
> How to upload to newsgroups and forums? :
>
> After you have followed step 1,2,3 and 4, save this message (and
> copy
> so you can use it again). Use your Internet browser and Outlook
> Express
> or another newsreader and try to find FORUMS, NEWSGROUPS, BULLETIN
> BOARDS, DISCUSSION GROUPS, CHAT SITES and ONLINE COMMUNITIES. Use
> GOOGLE or use a NEWSERVER. Use every option to post this message.
> Download PostXpert to send 1 message to more NEWSGROUPS at the

> same time.
>
> !!!!! REMEMBER !!!!! The more you post this message the more MONEY WILL
> FLOW IN.
>
>
> Why does this Business program work so well !!!!!.
>
> Lets asume that from the 200 (or more) messages that you have posted, only
> 5
> people respond, you will have your ?5 back that you have invested. Those 5
> people will each send at least 200 messages with your e-mailadres on
> number 4.
> That's 5 x 5 x ?1 = ?25. The next 25 people will also send 200 messages
> with
> your adres on number 3. That's 25 x 5 x ?1 = ?125. The next 125 people
> also send
> 200 messages with your name on number 2. That's 125 x 5 x ?1 = ?625. Those
> 625
> people again also send 200 messages with your name on number 1. That will
> give
> us a total off 625 x 5 x ?1 = ?3.125. This is only a EXAMPLE with 5
> reactions.
> You WILL get MORE responses than that.
>
> Remember that most newsservers will leave the posted messages on there
> servers
> for about 2 weeks. If you will post your message again, it WILL again
> start
> from the beginning. So you can repeat this over and over again.
>
> Everyday MILLIONS of people are ONLINE and reading these messages, JUST
> LIKE
> YOU RIGHT NOW. I also was sceptical in the beginning and have read a lot
> of
> these messages. I also thought that it was bullshit. Until I thought :
> What the
> hell!, only ?5. What's ?5 and a couple of minutes of my time to solve my
> money
> problems.
>
> !!!!! REMEMBER !!!!! Follow every step, and IT WILL WORK, TRUST ME. !!!!!
>
>
>
> !!!!! BEST WISHES AND GOOD LUCK !!!!!
>
>
>
>

>

661. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-19 23:28:05 UTC
From: - exray - <exray@coqui.net>
Message-ID: <11t0847nt2gj29a@corp.supernews.com>
Source record: 65222
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Fred W4JLE wrote:

> Now this is not a scam, simply send $1.00 from your paypal to
> w4jle@w4jle.com. I won't do anything for you, you will get nothing in
> return, and if I get enough suckers to bite I will go to OUTBACK Steak House
> and enjoy a meal on you.
>
> At least you know this won't cost more than a dollar, you need not worry
> about getting screwed, I have already told you up front you are. So get your
> guarenteed low cost screw job today!

Sounds like a scam to me! What if I send you a dollar and insist on
medium rare and the next guy who sends a dollar wants well-done? Are
you going to decide? Will you be sending our money back?
Sorry, I see this as only leading to problems. I'm not falling for it.

-Bill

662. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 01:41:47 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <14990$43d04031$18d6b488$14336@KNOLOGY.NET>
Source record: 65223
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Most young people, after paying social security taxes for a few years,
and listening to the news, ARE familiar with a Ponzi scheme. (or scam)
Mike

<hhc314@yahoo.com> wrote in message
news:1137709653.497618.151660@o13g2000cwo.googlegroups.com...
> Tom, realize that many newsgroup readers are so young that they are not
> familiar with the Ponzi scam. Otherwise they would not buy programs
> that perpetuate the scheme (or scam).
>
> http://home.nycap.rr.com/useless/ponzi/
>
> Harry C.
>

663. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 01:49:08 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <174c$43d041ea$18d6b488$14817@KNOLOGY.NET>
Source record: 65224
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

> Do I get a seniors discount?
> GBrown

You seniors! ya had 40 years to save yer money, an now
you want the youngsters to pay more so you can get a discount.

hurumph
Mike

664. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 02:08:57 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehfbiz13345000@cnews.newsguy.com>
Source record: 65225

Owen Duffy wrote:

> Bill, I often see the assertion that it is better to not bury radials.
>
> Can you point me to any reputable texts or experimental evidence that
> shows the difference between shallow buried radials and radials lying
> "on top of the ground"?
>
> Corrosion is often cited as a reason to use insulated buried radials,
> but is corrosion a significant risk in most locations. We widely use
> buried copper water pipes here, and copper clad earthing electrodes
> for the MEN power supply earthing, yet they don't seem to suffer
> significant corrosion in most places.
>
> It seems to me that insulated buried radials are likely to be less
> effective in a lightning protection role.
>
> Owen
~~~~~~

Your mind is already made up. Do as you like.

Bill, W6WRT
~~~~~~

665. Re: looking for antenna recommendation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 02:46:37 UTC
From: Crazy George <a013823@attglobal.net>
Message-ID: <43d04f29@kcnews01>
Source record: 65126

You can use that antenna, and don't need the triplexer. I would suggest looking for an appropriate fixed mount, something which will clamp to the rear rack for the bike, and use the mag base for other vehicles with larger area for a magnet to stick to. The antenna merely unscrews from the mount, so moving (or stealing) it is simple.

--
Crazy George
W5VPQ
My real address is my ham call <at>ARRL.NET The ATTGlobal is a SPAM trap.
<greg@littlebear.com> wrote in message
news:1137691091.471022.293300@z14g2000cwz.googlegroups.com...
> I'm looking for a recommendation for an external antenna to use with my
>
> Yaesu VX-7R handheld.
>
> This antenna would spend most of its life on a bicycle (on a rear rack
> behind the seat), which is how I commute to/from work. However, I'd
> like to be able to use it occasionally on a car/truck so I'm thinking a
>
> magnetic base would be the most flexible.
>
> Ideally it would cover all of the VX-7R's bands, or at least the
> 6M/2M/70CM bands and it would have a cable with an SMA connector at the
>
> end.
>
> Ideally it would be something like Diamond's CR627B antenna
> (http://www.rfparts.com/diamond/cr627b.html) but without needing a
> triplexor and with a magnet mount.
>
> Now I realize that such a thing might not exist which is why I'm open
> to suggestions that I drop the 6M band requirement which would lose me
> the grounding requirement which would lose me the restriction against
> magnet mount.
>
> Ideas?
>
> greg
>

666. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 02:51:18 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <hmi0t15ioqqnf9h9dd9uv9lao8i690mj5o@4ax.com>
Source record: 65127

On 20 Jan 2006 02:08:57 GMT, "Bill Turner" <noway@nohow.com> wrote:

>Owen Duffy wrote:
>
>> Bill, I often see the assertion that it is better to not bury radials.
>>
>> Can you point me to any reputable texts or experimental evidence that
>> shows the difference between shallow buried radials and radials lying
>> "on top of the ground"?
>>
>> Corrosion is often cited as a reason to use insulated buried radials,
>> but is corrosion a significant risk in most locations. We widely use
>> buried copper water pipes here, and copper clad earthing electrodes
>> for the MEN power supply earthing, yet they don't seem to suffer
>> significant corrosion in most places.
>>
>> It seems to me that insulated buried radials are likely to be less
>> effective in a lightning protection role.
>>
>> Owen
>~~~~~~
>
>Your mind is already made up. Do as you like.

I note that you decline to subtantiate the reasons underlying your
advice.

Has anyone references to sound evidence that supports Bill's advice
that radials "Lying on top of the ground is better." than buried.

Owen
--

667. Re: what are Microwave Antennas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 02:58:49 UTC
From: Scott <acepilot@bloomer.net>
Message-ID: <vuydncoR2bt0zE3eRVn-hA@bright.net>
Source record: 65128

We in the business call them "dishes" or parabolic dishes or reflectors.
Shaped like a dish to concentrate the microwaves to an antenna placed
at the dish focal point. Those 8 or 10 foot dish antennas in people's
yards to pick up satellite TV are microwave antennas...

Scott

Bug3 wrote:

> Wondering what are microwave antennas, what do they do, how do they
> work, etc?
> Are they used in wirless laptops, etc.?
> I can use a lot of information on this subject, I have to wirte 3 or 4
> pages on this and don't really know much about them need to read as
> much as possible.
>
> Thanks:)
> All information is great!
>

668. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 03:06:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QsYzf.10821$H71.4431@newssvr13.news.prodigy.com>
Source record: 65129
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

amdx wrote:
> You seniors! ya had 40 years to save yer money, an now
> you want the youngsters to pay more so you can get a discount.

I won't live long enough to get back all I paid into social
security plus interest.
--
73, Cecil http://www.qsl.net/w5dxp

669. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 03:22:25 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <11t0ltpe78fkj5e@corp.supernews.com>
Source record: 65130

Owen Duffy wrote:
> On 20 Jan 2006 02:08:57 GMT, "Bill Turner" <noway@nohow.com> wrote:
>
>
>>Owen Duffy wrote:
>>
>>
>>>Bill, I often see the assertion that it is better to not bury radials.
>>>
>>>Can you point me to any reputable texts or experimental evidence that
>>>shows the difference between shallow buried radials and radials lying
>>>"on top of the ground"?
>>>
>>>Corrosion is often cited as a reason to use insulated buried radials,
>>>but is corrosion a significant risk in most locations. We widely use
>>>buried copper water pipes here, and copper clad earthing electrodes
>>>for the MEN power supply earthing, yet they don't seem to suffer
>>>significant corrosion in most places.
>>>
>>>It seems to me that insulated buried radials are likely to be less
>>>effective in a lightning protection role.
>>>
>>>Owen
>>
>>~~~~~~
>>
>>Your mind is already made up. Do as you like.
>
>
> I note that you decline to subtantiate the reasons underlying your
> advice.
>
> Has anyone references to sound evidence that supports Bill's advice
> that radials "Lying on top of the ground is better." than buried.
>
> Owen
> --

Owen;

Given the expertise that Bill has accumulated over the years and the
good advise he has given to anyone who asks I think that your attitude
needs modification. When you were in school did you challenge your
teachers this way? I think not. If you diagreed you kept it to your self
or checked it out on your own.

For what it's worth everything that I have read tends towards placing the radials on the open ground, usually staked down so as to prevent tripping or getting caught in a lawn mower.

Dave WD9BDZ

Note to Bill: I know you don't need anyone to defend you but this guy isn't going to take any answer from anyone. I suggest that we drop him as a thread. I just know his response is going to be at me demanding positive confirmation. ;^)..

670. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 04:16:39 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <0an0t15bj93jvgh510cfcbe1ikadplvk8p@4ax.com>
Source record: 65131

On Thu, 19 Jan 2006 21:22:25 -0600, "David G. Nagel" <nagel@core.com>
wrote:

>Owen;
>
>Given the expertise that Bill has accumulated over the years and the
>good advise he has given to anyone who asks I think that your attitude
>needs modification. When you were in school did you challenge your
>teachers this way? I think not. If you diagreed you kept it to your self
>or checked it out on your own.

Dave,

I don't agree, I have never had a teacher worth his salt who responded
to polite questions as Bill did.

No, I don't believe something just because I read it on the 'net, I
would like to know why.

>For what it's worth everything that I have read tends towards placing
>the radials on the open ground, usually staked down so as to prevent
>tripping or getting caught in a lawn mower.

Yes, I see lots of web articles describing that in ham stations, but
it is not the only approach that I see documented and talked about.

In my limited experience, I have not seen commercial HF installations
with radial / ground wires laid above ground in preference to being
buried. The only cases I can recall were because of rock.

Whilst there are articles around about the performance of shallow
buried radials, I have not seen any that deal quantitatively with
radials laid on the ground, or pinned to the ground as you describe,
and the effects of those different installations on antenna
efficiency. That is what I was asking about.

Equally, there a plenty of articles where the author insists that
radials cannot work near the ground and they need to be some distance
above, some stating a quarter wave above.

They can't all have "better" efficiency, the only way to know is to
seek reasons why a configuration is better.

Bill proposed a "better" configuration and declined to explain why /
how it is better.

Owen
--

671. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 05:31:32 UTC
From: Charlie <charlie@usc.edu>
Message-ID: <11t0te46fg2pd47@news.supernews.com>
Source record: 65132

I used about 1300 ft of insulated copper wire for my 72 radials. I chose to pin mine to the ground witrh fenc e staples. I did this work in the dead of winter. I then also covered them with a thin layer of soil. Come spring the grass grows and the radials are hidden and beneath the applied soil layer so as to not interfere with the lawn mower.

Pictures of my installation for my Hustler 5BTV at this web page

1. http://www.ad5th.com/5-BTV.html

--

Charlie-AD5TH
www.deepsouthnet.net

"Gary Schafer" <gaschafer@comcast.net> wrote in message
news:ehqvs15nfbeceg68lpkj26o47s4te3d1ad@4ax.com...
> If you are also going to use the radials for a lightning protection
> ground then bare wire is much better.
>
> 73
> Gary K4FMX
>
>
> On 19 Jan 2006 06:04:29 -0800, john.minkjan@gmail.com wrote:
>
>>Question:
>>
>>Is you are making a HF-ground (radials just below the surface) Should
>>these radials be insulated or not?
>>
>>73 John
>

672. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 05:58:10 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehfhhg2lfsw000@cnews.newsguy.com>
Source record: 65133

David G. Nagel wrote:

> Dave WD9BDZ
>
> Note to Bill: I know you don't need anyone to defend you but this guy
> isn't going to take any answer from anyone. I suggest that we drop
> him as a thread. I just know his response is going to be at me
> demanding positive confirmation. ;^)..
~~~~~~

Thanks, Dave. He's history. (I wonder if he'd like positive
confirmation?)

73, Bill W6WRT
~~~~~~

673. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 06:19:04 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <j7v0t1dq235oom7e5o7b3jtjqv89k6puve@4ax.com>
Source record: 65134

On Fri, 20 Jan 2006 04:16:39 GMT, Owen Duffy <owen@no.where> wrote:

>In my limited experience, I have not seen commercial HF installations
>with radial / ground wires laid above ground in preference to being
>buried. The only cases I can recall were because of rock.
>
>Whilst there are articles around about the performance of shallow
>buried radials, I have not seen any that deal quantitatively with
>radials laid on the ground, or pinned to the ground as you describe,
>and the effects of those different installations on antenna
>efficiency. That is what I was asking about.
>
>Equally, there a plenty of articles where the author insists that
>radials cannot work near the ground and they need to be some distance
>above, some stating a quarter wave above.

Hi Owen,

These three paragraphs reveal arguments that vary by application,
rather than by degree. It seems to me that most AM stations' ground
fields are shallow buried in gravel simply to permit foot traffic. The
HAARP site uses a grid that is elevated sufficiently to allow
vehicular traffic. Neither really attend lightning as they are more
ground screens and principally constructed for RF.

I found a much more compelling report in:
UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
REA BULLETIN 1751F-802
SUBJECT: Electrical Protection Grounding Fundamentals
Which is vastly more comprehensive and directly answers these
questions when viewed in the terms of the resistivity of the earth
connection.

73's
Richard Clark, KB7QHC

674. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 06:56:42 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <vb11t150tt2t2gcagf5ojo5jjf5snhu5ma@4ax.com>
Source record: 65135

On Thu, 19 Jan 2006 22:19:04 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>These three paragraphs reveal arguments that vary by application,
>rather than by degree. It seems to me that most AM stations' ground
>fields are shallow buried in gravel simply to permit foot traffic. The
>HAARP site uses a grid that is elevated sufficiently to allow
>vehicular traffic. Neither really attend lightning as they are more
>ground screens and principally constructed for RF.

Yes, I understand that a ground system may be called upon to perform a
role as the other terminal of a Marconi for instance, and as the drain
for lightning or other EMP. Hence my earlier comment that a rule of
thumb that buried radials should be insulated seems to deny fullest
lightning protection to mitigate a small risk of corrosion.

>
>I found a much more compelling report in:
>UNITED STATES DEPARTMENT OF AGRICULTURE
>Rural Electrification Administration
>REA BULLETIN 1751F-802
>SUBJECT: Electrical Protection Grounding Fundamentals
>Which is vastly more comprehensive and directly answers these
>questions when viewed in the terms of the resistivity of the earth
>connection.

OK, I found it and it is substantial. It will be an interesting read,
thank you for the pointer. It appears to be focused more on power /
lighting protection that an antenna ground system.

For others, the URL is
http://www.usda.gov/rus/telecom/publications/pdf_files/1751f802.pdf
.

One of the things that intrigues me is the common "expert" advice to
cut radials for 7MHz to 33' long and bury them. It seems to me that
when buried and considering the wire as a transmission line, the
velocity factor will be somewhere between 0.3 and 0.8 depending on the
soil type, so that 33' is likely to be closer to a half wave
electrically, and present a relatively high and reactive impedance at
the antenna base if it were not for the attenuation of the wave on the
radial. It would seem a length more like 17' to 20' would be a better
estimate by the SWAG method (Scientific Wild Arsed Guess), although if
ground attenuation is high enough, it could be cut shorter and the
extra wire used for another radial for a more effective solution.

More when I digest some of the article.

Thanks again... Owen
--

675. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 09:14:18 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <pq91t19glqpefhejh73c9h2m24b96f7q4a@4ax.com>
Source record: 65136

On Fri, 20 Jan 2006 06:56:42 GMT, Owen Duffy <owen@no.where> wrote:

>One of the things that intrigues me is the common "expert" advice to
>cut radials for 7MHz to 33' long and bury them. It seems to me that
>when buried and considering the wire as a transmission line, the
>velocity factor will be somewhere between 0.3 and 0.8 depending on the
>soil type, so that 33' is likely to be closer to a half wave
>electrically, and present a relatively high and reactive impedance at
>the antenna base if it were not for the attenuation of the wave on the
>radial.

Hi Owen,

Calling them "tuned" radials is an artifact of their length being described in free space wavelength. The proximity of earth negates such illusions. The association with the necessity of being a quarter wave long comes by the field data obtained by Brown, Lewis, and Epstein. This was simply an arbitrary selection born more of the available wire being portioned out in binary increasing counts (2,4,8,16....) such that 119 radials depleted their stock (short of that magic 128). Their work has been offered on the web through the interests of our discussions here, and by one or several correspondent's scanning and posting their report. Google this newsgroup for that link using the authors as a keyword search. This was offered last summer.

73's
Richard Clark, KB7QHC

676. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 09:48:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11t1ceh5gjs7i95@corp.supernews.com>
Source record: 65137

Owen Duffy wrote:
>
> Bill, I often see the assertion that it is better to not bury radials.
>
> Can you point me to any reputable texts or experimental evidence that
> shows the difference between shallow buried radials and radials lying
> "on top of the ground"?
>
> Corrosion is often cited as a reason to use insulated buried radials,
> but is corrosion a significant risk in most locations. We widely use
> buried copper water pipes here, and copper clad earthing electrodes
> for the MEN power supply earthing, yet they don't seem to suffer
> significant corrosion in most places.
>
> It seems to me that insulated buried radials are likely to be less
> effective in a lightning protection role.
>
> Owen

You're asking some good questions.

Many years ago, I was doing some ground system experiments with a vertical antenna. I had strung a bunch of radials, consisting of small insulated hookup wire, on the surface of the ground and I was measuring antenna input impedance. I was surprised to discover distinct resonance effects as the radial lengths were changed, something which I hadn't expected -- they were acting more like elevated than buried radials. It was summertime and the clay ground was pretty dry.

Then I took some pieces of mild steel wire and "stapled" the wires down to conform with the ground and bring the wires into close contact with it. The resonant effects disappeared and the radials acted more like buried ones. I concluded that even a very small air gap between the radials and the ground provided some independence from the ground.

More recently I've done some modeling to try and understand the phenomenon a bit better. I'll give those results in my response to another of your recent postings.

Oh, as for corrosion -- I'm sure it depends on the soil. But there's no harm in using insulated wire, as far as RF ground effectiveness goes. I suppose it would limit the lighning protection voltage to the insulation voltage, however.

Roy Lewallen, W7EL

677. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 09:58:48 UTC
From: "Dr.Ace" <NoSpam@BedfordSucks.com>
Message-ID: <94765$43d0b434$4e0bd10$27948@DIALUPUSA.NET>
Source record: 65138

"Robert11" <rgsros@notme.com> wrote in message
news:CdSdnW2_R4YMFlLenZ2dnUVZ_t-dnZ2d@comcast.com...
> Hello:
>
> Very interesting comments on my question of a few days ago re lightning
> arrestors.
> Thank you all for trying to educate me on this subject; really find it
> confusing.
> Thread is a bit buried by now, so thought I'd start another one.
>
> I fully understand that the best approach is to (also) just disconnect
> everything.
>
> But if not around, here's what I don't understand and concerns me.
>
> Assuming a "nearby" strike, and a subsequent emp pulse that's picked up by
> a receive only antenna
> wire strung outside:
>
> No matter how quickly an arrestor's gas tube fires, and diverts the pulse
> to a good RF ground, the fact that it takes
> a few hundred volt threshold to fire makes "any" gas tube type of arrestor
> almost worthless re the protection of a receiver whose front end certainly
> won't take a few hundred volts, even for u-seconds, probably.
>
> Do you agree with this statement, or am I missing something ?
>
> Thanks,
> Bob
>

Hi Bob,
I'm Ace - WH2T.
Here's my story.
So far I have been very lucky. Neighbors closest on my north and south sides have both been hit, BAD SEVERE strikes. We live on a hill.
I had a strike take out a cheap portable TV that was in the kitchen and it blew a fuse in a VCR. It also came in the telephone line and blew up some FM intercoms that were connected to the telephone line. After that happened I had a commercial lightning arrestor installed by my electric power company at the electric meter.

I use 2 HF antennas, a 272 ft delta loop and a 160 meter band 1/4 wave inverted L antenna, both antennas go thru my MFJ-989C Tuner . When I am not on the air I leave the antenna switch on the tuner in the "Dummy Load"

position. That connects a 300 watt 50 ohm resistor to the radio's antenna jack and grounds both antennas.

The main lightning problems I have had in the 12 years at this QTH are surges coming in the telephone line.
I noticed when I moved here that all the telephone jacks in the house were black. I lost 9 computer modems in short order. I installed the smallest fast blow fuses I could find in both sides of the telephone line (they are under 100 ma) . The next time there was a nearby strike it blew both fuses and still blew my computer modem.
After that I installed three 130 Volt MOVs outside the house in the telephone box , one across the telephone line and one from each side of the telephone line to ground. I also installed a very small pigtail neon lamp between or across the 2 sides of the telephone line. It acts as a gas tube type of arrestor, and lights when the telephone rings, or when lightning strikes nearby; the threshold to fire is under 100 volts. I also installed a DPDT knife switch , to break the telephone line when the computer is not connected to the internet. No further problems. I live out in the country dial up is all that is available here other than expensive satellite access. Anyway , now on to your question.

I got the following Info from another ham.

From my commercial broadcast days the lightning control solution for tall insulated base AM towers (which were always experiencing direct lightning strikes) was to use 2 inch diameter copper balls spaced 1/4 to 1/2 inch from each other (depending on peak RF voltage present) at the base of each tower on heavy arms as a lightning spark gap. Then the 1/4 inch tubing feeding station RF into each tower base would be formed into a 3 turn loop with a 12 inch diameter, with about 2 inch spacing between each turn. I would do the same with the coax feeding repeaters and studio-transmitter links on these towers. I never lost any equipment using these techniques.

I realized I have to mention that I use an inductive RF coupling-impedance transformer in my homemade transmatch in order to eliminate a direct dc path from the ladder line to the transceiver input. I also use high tension teflon coated wire for the primary turns in the transformer. Lightning would be common mode on the transmission line and therefore not inductively coupled through the transmatch. The issue then becomes voltage breakdown between transformer primary and secondary windings (along with minor capacitive coupling), hence the teflon coated wire.

Concerning possible lightning on the ladder line, I use adjustable spark gaps from each conductor to ground outside of my building.

I hope this is of some help.

Ace - www.WH2T.com

678. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 10:06:26 UTC
From: "Dr.Ace" <NoSpam@BedfordSucks.com>
Message-ID: <ad086$43d0b5fc$4e0bd10$27996@DIALUPUSA.NET>
Source record: 65139

"Maarten" <maartenkoning2002@yahoo.com> wrote in message
news:1137539656.712611.283320@g47g2000cwa.googlegroups.com...
> Hi,
>
> I seek some help, advise or suggestions on HF antenna's. I've bought a
> house with a plot of approx 330 x 80 ft / 100 x 23 mtr available for HF
> antenna's.
> But when I research HAM HF antenna's, home build or commercially
> available, I only find a lot of small, smaller and smallest HF
> antenna's (eg. wire antenna's, inverted V, T2DF) that don't take full
> advantage of the size of my land available. On the other end of the
> spectrum there are plans for very, VERY large antenna's like Rhombic
> and Beverage. For this size of antenna's my plot is to small.
>
> Do you have suggestions for HF antenna's I should check out? Let me
> know in this forum or pm me. Thanx in advance. 73
>
> Maarten
> maartenkoning2002 (at) yahoo.com
>

Check out -
http://www.bloomington.in.us/~wh2t/ant.htm

I discuss some large antennas.
73, Ace - WH2T

679. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 10:07:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11t1dipb6b2jvde@corp.supernews.com>
Source record: 65140

Owen Duffy wrote:
> . . .
> One of the things that intrigues me is the common "expert" advice to
> cut radials for 7MHz to 33' long and bury them. It seems to me that
> when buried and considering the wire as a transmission line, the
> velocity factor will be somewhere between 0.3 and 0.8 depending on the
> soil type, so that 33' is likely to be closer to a half wave
> electrically, and present a relatively high and reactive impedance at
> the antenna base if it were not for the attenuation of the wave on the
> radial. It would seem a length more like 17' to 20' would be a better
> estimate by the SWAG method (Scientific Wild Arsed Guess), although if
> ground attenuation is high enough, it could be cut shorter and the
> extra wire used for another radial for a more effective solution.

Modeling clearly shows that using elevated radials which are too long degrades the efficiency. A quarter wavelength can be determined by constructing a dipole at the height of the proposed radial system and adjusting it to resonance. The maximum length of the radials is half the length of that dipole. If you make them longer, efficiency drops. Very close to the ground, the length of a quarter wavelength decreases substantially, so a free-space quarter wavelength can easily be too long.

Modeling presents a very idealized situation, overly so when dealing with ground. But I believe the general trends and conclusions are instructive. I modeled a 40 meter vertical over average ground. It had four 34 foot radials, which were quarter wave resonant when elevated very high. As I lowered the radials from one foot high to 0.1 inch high, the gain dropped 4 dB. The main cause of the drop was that the radials were becoming too long at the low height above ground. Shortening them to 19.6 feet, the resonant length at that height, increased the field strength by 2.45 dB. Burying them lowered the field strength to 1.7 dB below the field strength when 0.1 inch above the ground and of proper length. There wasn't any substantial change in field strength as the length was increased beyond about 30 feet, or when the depth was varied from 0.1 to 6 inches. These changes in field strength are solely due to changes in efficiency; the pattern shape stays the same.

When modeled at 0.1 inch above the ground, the radial current distribution is approximately sinusoidal, as in elevated radials. When buried, even an inch, the current decays in an approximately exponential fashion away from the center. In the case of the modeled antenna system, the current was substantially zero beyond about 40 feet.

Conclusions are:

1. A small number of radials just above the ground are theoretically a bit more efficient than the same number of buried radials, providing that they're not longer than a resonant quarter wavelength at that height. I say theoretically, though, because I believe it would be impossible to maintain current balance in the radials at a low height. So one or two radials would likely hog all the current, resulting in a less efficient system.

2. Making elevated radials too long, even if the elevation consists of being just above the ground, can seriously reduce the antenna efficiency. Buried radials, on the other hand, are insensitive to length provided they're sufficiently long. This latter fact is well known. I've found in other modeling I've done that making elevated radials shorter than a resonant quarter wavelength doesn't negatively impact the efficiency. So if you have to guess, guess on the short side.

The amount of differences you'll see in real antenna systems will vary quite a bit depending on ground characteristics, frequency, and number of radials. And it would be impossible to suspend radials precisely over a perfectly flat and homogeneous ground as I've done with the models. But I believe the conclusions are valid.

Roy Lewallen, W7EL

680. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 12:07:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <co4Af.11114$_S7.2200@newssvr14.news.prodigy.com>
Source record: 65141

Owen Duffy wrote:
> Whilst there are articles around about the performance of shallow
> buried radials, I have not seen any that deal quantitatively with
> radials laid on the ground, or pinned to the ground as you describe,
> and the effects of those different installations on antenna
> efficiency.

Will NEC-4 accurately model radials at different depths?
--
73, Cecil http://www.qsl.net/w5dxp

681. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 12:44:43 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%W4Af.15171$Yu.2670@newssvr27.news.prodigy.net>
Source record: 65142

Owen Duffy wrote:
> One of the things that intrigues me is the common "expert" advice to
> cut radials for 7MHz to 33' long and bury them. It seems to me that
> when buried and considering the wire as a transmission line, the
> velocity factor will be somewhere between 0.3 and 0.8 depending on the
> soil type, so that 33' is likely to be closer to a half wave
> electrically, and present a relatively high and reactive impedance at
> the antenna base if it were not for the attenuation of the wave on the
> radial.

You seem to be referring to the feedpoint impedance of a
single radial the virtual impedance of which would depend
upon the magnitude and phase of the forward and reflected
wave on the radial wire. The single-wire transmission line
formula gives a Z0 for each radial as less than 100 ohms.
Given the probability of a high degree of attenuation and
the number of radials in parallel, the impedance presented
at the base is likely to be relatively low no matter what
the length of the radials assuming an electrical length
of longer than 1/4WL.
--
73, Cecil http://www.qsl.net/w5dxp

682. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 12:50:35 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <f3n1t1pt81vcukq70f84ddpoci5l3ilr01@4ax.com>
Source record: 65143

On Thu, 19 Jan 2006 23:31:32 -0600, "Charlie" <charlie@usc.edu> wrote:

>I used about 1300 ft of insulated copper wire for my 72 radials.

So they're about 18 feet long, giving you a short, dense pattern?

bob
k5qwg

> I chose to
>pin mine to the ground witrh fenc e staples. I did this work in the dead of
>winter. I then also covered them with a thin layer of soil. Come spring the
>grass grows and the radials are hidden and beneath the applied soil layer so
>as to not interfere with the lawn mower.
>
>Pictures of my installation for my Hustler 5BTV at this web page
>
>1. http://www.ad5th.com/5-BTV.html

683. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 13:20:06 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43d0e2c9_5@newsfeed.slurp.net>
Source record: 65144

"Roy Lewallen" wrote
> 2. Making elevated radials too long, even if the elevation consists of
> being just above the ground, can seriously reduce the antenna efficiency.
> Buried radials, on the other hand, are insensitive to length provided
> they're sufficiently long. This latter fact is well known. I've found in
> other modeling I've done that making elevated radials shorter than a
> resonant quarter wavelength doesn't negatively impact the efficiency. So
> if you have to guess, guess on the short side.

NEC studies of a 1/4-wave vertical radiator working against three 1/4-wave horizontal radials at 120 degrees, when all elements are elevated 12 feet above a perfect ground plane show virtually identical peak gain as when the same radiator minus the radials is mounted with its base at the perfect ground plane, and connects to it though two ohms (about the same ground loss as produced by 120 buried radials, each 1/4-wave long).

As few as four elevated radials have been used at AM broadcast sites where a typical system of 120 buried radials was impossible due to rocky terrain. The FCC "efficiency" of these radiator systems meets/exceed FCC requirements for radiation at 1 km.

Conclusion: a few elevated radials can be the electrical equivalent of a classic "Brown, Lewis & Epstein" system of 113 (or 120)buried radials.

RF

684. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 13:56:28 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqqq6c$h20$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65145

"Owen Duffy" wrote
> Whilst there are articles around about the performance of shallow
> buried radials, I have not seen any that deal quantitatively with
> radials laid on the ground, or pinned to the ground as you describe,
> and the effects of those different installations on antenna
> efficiency.
=======================================

Owen, you may be interested in Program RADIALS3.

Once radials are buried in the ground, just below soil surface, I don't think depth of burial matters very much. But things happen very fast when resting on the soil surface and conductor height is raised only slightly.

Consider a single counterpoise wire. When resting on the soil surface propagation velocity along the wire is about half of the free space velocity. Propagation velocity increases fast as height increases. When height is greater than length the VF is very nearly 1.

When resting on the ground there is an equivalent loss resistance distributed along the wire due to the mutual impedance with the ground. The input resistance at resonance is high. Q is very small. But a lot depends on soil resistivity.

With increasing height the coupling with ground decreases and so does the input resistance. When height is greater than length the input resistance is due only to conductor loss resistance and resonant Q is high.

Resonant frequency increases with height due to the increase in VF. The increase in VF is due to decrease in capacitance to ground when considered as a transmission line.

Changes in capacitance, VF, resonant frequency, and induced loss in the ground, mostly occur in first few inches of height above ground but cannot be neglected until height is roughly greater than length.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

685. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 14:09:59 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43d0ee79_3@newsfeed.slurp.net>
Source record: 65146

"Richard Fry"
> NEC studies of a 1/4-wave vertical radiator working against three 1/4-wave
> horizontal radials at 120 degrees, when all elements are elevated 12 feet
> above a perfect ground plane... etc

I neglected to include that the frequency in these studies was 1 MHz, so
elevation of the system was about 0.012 wavelengths (Reg).

RF

686. Need Loop Advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 15:20:02 UTC
From: Scott Gordon <sgordon@wowway.com>
Message-ID: <lJCdnQPSHJo6Yk3eRVn-sQ@wideopenwest.com>
Source record: 65147

I have had a 75 meter loop up and down for several years. I guess I try a different antenna every once and a while and always end up putting my loop back up since reports are always the best. I feed it with 450 ohm line and use it on all bands. I even had good results shorting the ends together and using it on 160 meters.

Now my question, I would like to get up a loop on 160 meters. But my measurements I am only going to be around 450 and maybe can get it to near 500 feet which is probably 50 to 100 feet or so short. I will be using 450 ohm line. Does anyone know of what kind of results I might see with this length of loop? Should I just stick with my 75 meter or will I see any gains going bigger?

--
Scott Gordon
KQ8RP

687. HamPoll.Com wants your opinions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 15:31:38 UTC
From: Charles Brabham <n5pvl@sbcglobal.net>
Message-ID: <qn7Af.15211$Yu.2035@newssvr27.news.prodigy.net>
Source record: 65148

HamPoll exists in order to give amateurs a chance to speak for themselves and to provide accurate, reliable polling data on a variety of issues related to the amateur radio service.

You are welcome to browse the polling data we have, but we especially encourage US amateurs visiting here to register with thier callsign and vote in the HamPoll Polling Station.

Whether you come to browse, to discuss or submit new polls, or to tender your vote, be sure to visit regularly as new polls are included from time to time and the poll data changes as more hams participate day to day.

Stop by at: http://www.hampoll.com

Charles Brabham, N5PVL
HamPoll Administrator

688. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 15:44:52 UTC
From: richardharrison@webtv.net
Message-ID: <12633-43D10574-1718@storefull-3254.bay.webtv.net>
Source record: 65149

Congratulations Dr. Ace!

You sure know how

to trash a place!

Best regards, Richard Harrison, KB5WZI

689. Re: what are Microwave Antennas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 15:59:26 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <vvd7a3-30d.ln1@p400bob.personal.cox.net>
Source record: 65151

Hmmm

Well I can see that the term doesnt have a rigid definition as such. The antenna part is obvious and I hope doesnt need me to elaborate. The word microwave generally means a "small wavelength", probably anything higher than the frequency of 1Ghz but it may be defined more accurately elsewehere. The wavelength is inversely proportional to the frequency and at 1GHz is about 300mm.

Microwave communciation is generally characterised by short distances and line of sight or visible paths between one end and the other. Examples might be mobile phones (900MHz, 1.8GHz, 2.4GHz), WiFi computer links (2.4GHz, 5.6GHz), high capacity data links (2-25GHz) and so on. (1000MHz=1GHz) Once the path becomes obstructed or goes over the horizon the signal gets severely attenuated.

Antennas are designed and manufactured for the service and range required.

- Something to control a toy truck with you'll want to radiate in as wide as a coverage angle as possible. When you tilt the controller back and forth you still want it to work. Keep in mind that microwave radiation also reflects of objects pretty well, so for short range this is often the mode of operation.
- A WiFi antenna on a laptop and a users mobile phone generally needs to radiate in a roughly horizontal direction but at every azimath. By concentrating the radiation in a desired direction you get better range or can get away with using less power. The WiFI and mobile phone base station on tbe other hand may have more stringent radiation and directionality requirements. The service area may be deliberately restricted by the choice of antennas
- A high capacity microwave data link will pretty well always use high gain high directive antennas at each end. This is so you can make the signal work (say) upto 50km with low power. It is also very important for these links to only have a direct (non reflective) path between each other. The extra time delay introduced by a reflection can foul up the link operation. (You may have heard the term "multipathing")

Generally speaking an antenna is made up of half wavelength elements at the desired frequency, arranged to concentrate the radiation in the desired direction. (look up the antenna terms 'colinear' and 'yagi') More in common use are antennas that use large reflectors behind the element connected to the cable. (look up 'parabolic dish', 'gridpack' & 'patch antennas'. What you see on a comms tower is the same theory of operation as a deep space tracking dish.

The theory of operation of a microwave antenna is pretty much the same
as an antenna made for a lower frequency, just everything is much smaller!

From here on in you'll have to do some research on what antenna gain is
and how to build it into the structure.

Cheers Bob VK2YQA

Bug3 wrote:
>
> Wondering what are microwave antennas, what do they do, how do they
> work, etc?

690. Re: noise bridge

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 16:04:10 UTC
From: N7ZZT - Eric Oyen <n7zzt@127.0.0.1>
Message-ID: <7S7Af.171$2o5.140@dukeread11>
Source record: 65150

jawod wrote:

> As I read through the various opinions regarding antenna load,
> impedance, etc., most of the arguments seem to be mathematically oriented.
>
> Does anyone use a noise bridge (as mentioned in ARRL pubs) to determine
> the feedpoint impedance?

I use one rather often as a means of tuning my antenna for best reception on HF (not transmit). I have had a general or 2 test my assumption and they seem to hold up (with some minor tweaking to clean up stray impedances).

>
> Is there a source for these bridges?

mfj makes a nice antenna noise bridge. its simple to use too (only 1 knob - power).This device is used concurrently with a tuner for best results.

--
DE N7ZZT
Eric Oyen
Phoenix, Arizona
e-mail: n7zzt(at)hotmail(dot)com
the difference between intelligence and stupidity is that intelligence has its limits.

691. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 17:45:24 UTC
From: w_tom <w_tom1@usa.net>
Message-ID: <1137779124.523915.27160@o13g2000cwo.googlegroups.com>
Source record: 65152

Note the voltage on that fuse. No matter how fast it is, if a transient exceeds that voltage, then the fuse remains a conductor. Furthermore, destructive transients occur in microseconds. That fuse takes tens of milliseconds to open. Two reasons - both numbers - that demonstrate why one cannot stop or block destructive transients.

Meanwhile, the phone line should already have a protector installed for free that looks something like boxes at:
http://www.alarmsuperstore.com/bw/bw%20connectors.htm
But again, the protector is not protection. A protector is simply a connection to earth. If that box is not properly earthed, then a transient will seek earth ground, destructively, via household appliances.

Most destructive transients enter on AC main seeking earth ground. Incoming on AC electric, into telephone appliances such as portable phone base station, fax machine, computer modem - or that intercom. Then outgoing to earth ground via telephone line. To have damage, first, a path to earth ground must be both incoming and outgoing through damaged electronics. Incoming on that intercom AC electric; outgoing via phone line. It also explains why some appliances are damaged while others are not.

But again, what is the protection? Earth ground. Fuses, power strip protectors, and anything else that will 'stop or absorb' a surge is myth. Ben Franklin demonstrated the solution in 1752. Give a transient a better (shorter, low impedance, etc) path to earth so that it need not find a path, destructively, via electronics.

Those fuses only might blow. And if they did, maybe 300 consecutive and separate transients could have already damaged the electronics. More often, fuses trip due to and after damage created by a destructive transient. If one suffers damage, one discovers why the dwelling was not properly earthed. Why was lightning seeking earth ground inside a building? The answer is often directly traceable to human failure. Protection is about earthing before a transient enters the building.

Dr.Ace wrote:
> Hi Bob,
> I'm Ace - WH2T.
> Here's my story.
> So far I have been very lucky. Neighbors closest on my north and south sides
> have both been hit, BAD SEVERE strikes. We live on a hill.
> I had a strike take out a cheap portable TV that was in the kitchen and it
> blew a fuse in a VCR. It also came in the telephone line and blew up some FM
> intercoms that were connected to the telephone line. After that happened I

> had a commercial lightning arrestor installed by my electric power company
> at the electric meter.
>
> I use 2 HF antennas, a 272 ft delta loop and a 160 meter band 1/4 wave
> inverted L antenna, both antennas go thru my MFJ-989C Tuner . When I am not
> on the air I leave the antenna switch on the tuner in the "Dummy Load"
> position. That connects a 300 watt 50 ohm resistor to the radio's antenna
> jack and grounds both antennas.
>
> The main lightning problems I have had in the 12 years at this QTH are
> surges coming in the telephone line.
> I noticed when I moved here that all the telephone jacks in the house were
> black. I lost 9 computer modems in short order. I installed the smallest
> fast blow fuses I could find in both sides of the telephone line (they are
> under 100 ma) . The next time there was a nearby strike it blew both fuses
> and still blew my computer modem.
> After that I installed three 130 Volt MOVs outside the house in the
> telephone box , one across the telephone line and one from each side of the
> telephone line to ground. I also installed a very small pigtail neon lamp
> between or across the 2 sides of the telephone line. It acts as a gas tube
> type of arrestor, and lights when the telephone rings, or when lightning
> strikes nearby; the threshold to fire is under 100 volts. I also installed a
> DPDT knife switch , to break the telephone line when the computer is not
> connected to the internet. No further problems. I live out in the country
> dial up is all that is available here other than expensive satellite access.
> Anyway , now on to your question.
> ...

692. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 18:15:14 UTC
From: richardharrison@webtv.net
Message-ID: <19272-43D128B2-1581@storefull-3255.bay.webtv.net>
Source record: 65153

Ace, WH2T wrote:
"I realized I have to mention that I use an inductive RF coupling - impedance transformer in my homemade transmatch in order to eliminate a direct d-c path from the ladder line to the transceiver input."

Lightning is a threat to antennas and to items connected with them. Static charges may build in a time of clear skies, especially ahead of a thunderstorm. Guy-wire insulators often flashover to announce a storm is approaching.

Radio towers in broadcast stations get lightning strikes over and over again, but loss of equipment or even air time is minimal.

The beacon atop a tower is most exposed, but it is protected by a vertical metal rod attached to the tower near the beacon and extending well above it. Often this rod is an 8-ft Copperweld groundrod bolted to the tower with its tip point skyward. Pits on the rod show it takes hits. Beacon survival shows it does not take hits. The protection works.

Guy-wire insulators are often doubled or tripled at the tower attachment points to discourage flashovers here.

An air gap is provided across the tower base insulator. In theory, lightning ionizes rhe air in the gap and shunts the charge to ground before it gets into the feeder system. Spacing is usually adjusted to only slightly wider than the gap will breakdown on the transmitted signal. I`ve examined many of these ball gaps and horn gaps and seen no evidence of flashover.

To discourage lightning, a turn or two is often made in the conductor feeding the tower. I haven`t seen pts on the balls or horn gaps indicating that the tiny inductance added by a turn or two in the feedwire does any good.

A static-drain choke which has a very high impedance at the operating frequency, but has a low d-c resistance, is often connected across the tower`s base insulator on the line side of the base impedance matching unit. It may be placed on the tower side of the matching unit if there is no d-c continuity through the matching unit.

All the stations I`ve worked in had an air-core 1:1 coupling transformer in the tower matching unit. Primary and secondary share the same axis but are seoarated by a metal rake which serves as a Faraday screen. It is a picket fence between the coils. The tines of the rake have no electrical connection at one end, but the backside of the rake connects all the tines together and firmly grounds them.

The rake allows magnetic coupling between the coils but prohibits electric field coupling between the coils. The rake is a very effective lightning stopper. It is full of pits where lightning has struck.

Best regards, Richard Harrison, KB5WZI

693. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 19:18:55 UTC
From: hhc314@yahoo.com
Message-ID: <1137784735.650874.68910@o13g2000cwo.googlegroups.com>
Source record: 65154
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

amdx, still there are enough of the young guys and girls that are ignorant of the Ponzi type scam and buy these worthless software packages that annoy us all on a daily basis. I'll admit that some old fools also buy into these 'get rich for free' scams, however most of the seniors realize that nothing comes for free.

I simpy look at my junk mail file on Yahoo and pity the poor person that has been misled into buying into one of these scam products (the software, not the scam itself).

Naturally, from my curmogenous viewpoint, anyone that buys into these software scams is so stupid that they require treatment. Those that respond to the canned pratter that their software posts are so brain dead that they are beyond hospitalization and treatment.

Sometimes it is educational to read their patter. For example, on one day I received 5 junk mails sent by five different individuals, with identical text content. Evidently, they were all scammed by the same junk mail software seller!

I must have a perverse mind, because I find that funny.

Curmudgeonly yours, Harry C.

694. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 19:34:23 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqrdvv$7ev$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65156

When lightning directly strikes either the antenna or the dwelling,
despite all the precautions, ANYTHING can happen.

The direct strike is just as likely to be on the dwelling and its
occupants as the ordinary radio antenna.

So concentrate precautions on your house, the more valuable of your
possessions. Only then think about your inverted-L and your radio
equipment.

Just a logical way of thinking about things.

A direct strike will probably never happen anyway.
==========

695. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 19:36:06 UTC
From: hhc314@yahoo.com
Message-ID: <1137785765.969348.81760@g14g2000cwa.googlegroups.com>
Source record: 65155
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Same here Cecil.

The young kids don't have a clue about Social Security, because it isn't important to them at their time in life, nor was it for me when I was 25. None of us ever thought that we would live to see 65, hence it was just like income tax, something that you simply had to pay.

The problem is not for us elders, but for the younger people who will hopefully someday reach 65. Today, most of these kids don't realize is that the fault with the Social Security system is not in its basic design, but what I beleve is called SSI that allows anyone regardless of age to claim benefits unser Social Security by claiming some form of disability, even if they have never contributed to the system.

Just as an example, when I went to the Social Security office to claim my earned beneits, I was the only American present in the waiting area containing roughly 30 applicants. Most of these individuals were there seeking SSI benefits, few were American citizens, and most had never paid a dime into the system. This is precisely the problem that Social Security faces.

No wonder Social Security is in trouble. It is comparable to a corporation that pays dividends to people that don't even own stock in the company!

'Nuff said on that subject.

Curmudgeonly yours, Harry C.

696. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 19:58:59 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <d8ac9$43d14102$18d6b488$28611@KNOLOGY.NET>
Source record: 65157
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

>still there are enough of the young guys and girls that are
> ignorant of the Ponzi type scam
>
> Curmudgeonly yours, Harry C.
>
A class on consumerism ("they want to take your money") should be a
required
class in middle school.
And don't get me started on all the bogus, weight loss products, grow tall
products, second grade teacher developed common cold product, herbs that
will stop diabetes and
heart disease, anti hairloss products, improve your memory, shrink your
prostate, grow penis, cleanse your blood, detoxify your liver, give you more
energy, stop your joint pain, make you more appealing to the opposite sex, ,
improve your eyesight, slow
the ageing process, improve your circulation, make exercise easy, prevent
cancer, make
your skin beautiful, health restoring magnetic shoe inserts, magnetic water
enhancers.
I think you got me started ;-0
And speaking of curmudgeons, Andy Rooney said
" Happy birthday?--I DON'T THINK SO."
Mike, I promise to enjoy my day! Bye

697. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 20:40:57 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97518102DD023doldridgsprintca@64.59.135.159>
Source record: 65158

"John, N9JG" <john@gotwals.XremoveY.com> wrote in
news:OVTzf.501279$084.368852@attbi_s22:

> Ok, but do you use steel or aluminum fence wire? Galvanized steel
> fence wire will rust in a few years.

Copperclad steel, usually.

--
Dave Oldridge+
ICQ 1800667

698. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 20:43:15 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <3mi2t15vgba1h1ctc421tk6olunkuigtvk@4ax.com>
Source record: 65159

On Fri, 20 Jan 2006 13:56:28 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Owen, you may be interested in Program RADIALS3.

>For Free Radio Design Software go to
>http://www.btinternet.com/~g4fgq.regp

Reg, did I miss something. RADIALS3 doesn't seem to be in the index at
http://www.btinternet.com/~g4fgq.regp/page3.html#S301%22

Owen
--

699. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 20:51:20 UTC
From: richardharrison@webtv.net
Message-ID: <20330-43D14D48-1860@storefull-3251.bay.webtv.net>
Source record: 65160

Reg, G4FGQ wrote:
"The direct strike is just as likely to be on the dwelling and its occcupants as the ordinary radio antennas."

True, unless the antennas are much taller than the dwelling. That was the case of the radio stations. Occupants were safe, protected by the tall radio towers. Just as the towertop rod protects the beacon. the tower protects the nearby structures under it (within its "cone of protection"). Agreed that people are more important than radios. I don`t want to cede people or radios.

Here on the Gulfcoast of the U.S.A., the climate is semitropical and thunderstorms are abundant. Radio towers are struck by lightning repeatedly by nearly every passing thunderstorm and these are frequent.

Where I`ve worked, buildings on the station`s property were never struck, nor was a serious electric surge ever transmitted into any building other than one of the "dog houses" at the towers where it is expected.and prepared for the stroke.

The buildings on radio station properties are protected by big lightning rods, the towers, just as Benjamin Franklin predicted in 1735.

Best regards, Richard Harrison, KB5WZI

700. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 21:05:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <PgcAf.12299$F_3.1580@newssvr29.news.prodigy.net>
Source record: 65161

Owen Duffy wrote:
> I often see the assertion that it is better to not bury radials.

Here's a data point for all. I'm taking down my 102 ft dipole
and putting back up my 130 ft dipole. I measured the resonant
frequency and feedpoint impedance of the 102 ft dipole both
while hanging in the air as a V and laying on the ground.

Hanging in the air: Resonant at 4.52 MHz with a feedpoint
impedance of 22 ohms.

Laying on the ground: Resonant at 2.17 MHz with a feedpoint
impedance of 108 ohms.

Laying the insulated wires on the ground resulted in a
reduction of VF of about 50%. The marked increase in
feedpoint impedance was due to the attenuation of the
reflected waves arriving back at the feedpoint and
agrees closely with my calculations of such.
--
73, Cecil http://www.qsl.net/w5dxp

701. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 21:10:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OkcAf.12300$F_3.4931@newssvr29.news.prodigy.net>
Source record: 65162

Cecil Moore wrote:
> Laying the insulated wires on the ground resulted in a
> reduction of VF of about 50%. The marked increase in
> feedpoint impedance was due to the attenuation of the
> reflected waves arriving back at the feedpoint and
> agrees closely with my calculations of such.

I forgot to say: Note that the dipole laying on the ground
was close to one wavelength, yet the feedpoint impedance
is not all that high. It would appear that 1/2 wavelength
buried radials do NOT present a high impedance.
--
73, Cecil http://www.qsl.net/w5dxp

702. force 12

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 23:22:24 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1137799344.473854.111200@g49g2000cwa.googlegroups.com>
Source record: 65163

I wish have a copy manual of sigma 5 and sigma xk made by force12.
Can anyone send me a copy?

Thanks
ik7ytt , andy

703. Re: Need Loop Advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-20 23:41:11 UTC
From: jgboyles@aol.com
Message-ID: <1137800471.862242.307690@g14g2000cwa.googlegroups.com>
Source record: 65164

Scott Gordon wrote:
> I have had a 75 meter loop up and down for several years. I guess I try a
> different antenna every once and a while and always end up putting my loop
> back up since reports are always the best. I feed it with 450 ohm line and
> use it on all bands. I even had good results shorting the ends together and
> using it on 160 meters.
>
> Now my question, I would like to get up a loop on 160 meters. But my
> measurements I am only going to be around 450 and maybe can get it to near
> 500 feet which is probably 50 to 100 feet or so short. I will be using 450
> ohm line. Does anyone know of what kind of results I might see with this
> length of loop? Should I just stick with my 75 meter or will I see any
> gains going bigger?
>
> --
> Scott Gordon
> KQ8RP
Hi Scott, on the low bands you are not going to see much gain. What
you should shoot for is efficiency. On the low bands, the longer the
better. Feed it with 450 ohm line and an efficient antenna tuner and
you should be OK with the dimensions you have available.
Gary N4AST

704. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 00:35:02 UTC
From: "John O. Kopf" <kopfj@worldnet.att.net>
Message-ID: <43D181DC.19682475@worldnet.att.net>
Source record: 65165
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Just forward all of the pyramid scam messages to:
FEDERAL TRADE COMISSION PYRAMID SCAM PROSECUTION <uce@ftc.gov>

A copy to the sender saying that posting this is a FEDERAL OFFENSE helps
as well! :>}

JK

hhc314@yahoo.com wrote:
>
> amdx, still there are enough of the young guys and girls that are
> ignorant of the Ponzi type scam and buy these worthless software
> packages that annoy us all on a daily basis. SNIP

705. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 00:55:13 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqs0phgrb1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65166

"Owen Duffy" wrote
>
> >For Free Radio Design Software go to
> >http://www.btinternet.com/~g4fgq.regp
>
> Reg, did I miss something. RADIALS3 doesn't seem to be in the index
at
> http://www.btinternet.com/~g4fgq.regp/page3.html#S301%22
>
> Owen

Very sorry Owen. My mistake.

The name of the program is RADIALS2.

It deals only with buried radials.

I am at present trying to write a program about coil-loaded
counterpoises and artificial grounds at low heights. But it's a beast
to model mathematically.

Reg.

706. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 03:38:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqsab0heu1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65167

"Cecil Moore" wrote
It would appear that 1/2 wavelength
> buried radials do NOT present a high impedance.
>
==========
Cec,

. . . . as demonstrated by program RADIALS2

which treats radials as transmission lines. As they truly are.

The permittivity of soil surrounding buried radials is high. It is due to the moisture content of the soil. Water has a high permittivity K = about 80. If the moisture content is 20 percent then the permittivity is roughly K = 16 plus a little bit for the dry content.

The poor, low conductance of the dielectric material, in conjunction with wire inductance, also has an effect.

The soil is mainly, minute rock particles and a little air. Rock has K = 4 or 5. Air = 1.

Velocity factor of any transmission line = 1 / Sqrt(Permittivity).

In some circumstances, there may be no point in having radial lengths longer than 1/10th or 1/12th of the free-space wavelength.

If the soil has any magnetic material in it then the velocity is even lower. But it's a waste of time trying to tune buried radials by sprinkling iron filings around your garden.

The attenuation along buried radials is usually so high that even 1/4-wave resonance doesn't show up. Impedance versus length at low HF is a smooth curve approximately equal to Zo. But input impedance of a set of radials is NOT equal to the impedance of the individual wires all in parallel. They interact with each other. The Law of Diminishing Returns applies.

In perfectly dry desert sand with a resistivity of 5,000 or 10,000 ohm-metres and K = 3, the 1/2-wave resonance may appear on an impedance vs frequency curve. Program RADIALS2 shows this effect as evidence of reasonable modelling accuracy.

This is a case of ground loss decreasing as soil resistivity increases further. It appears attenuation is a maximum when soil resistivity is around several hundred ohm-metres (377?). Which is quite a poor soil.

(I once had a garden of sandy soil. Resistivity was 400 ohm-metres
even in wet weather. Eventually I moved house. SR fell to 70. On the
160m band 7 radials, each about 10 feet long, plus the cold water
pipe, were good enough with a 3/8 wave inverted -L. I never tried
B,L,E's 118 radials, 1 wavelength long.)

But in bone dry sand-desert soil, just rock mixed with air, at low HF
one would not use a system of radials under a 1/4-wave vertical. The
antenna could be a horizontal dipole lying on the ground. ;o)

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

707. Re: SF Solar Flux Values: What's A Good Value For General SWL

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 04:14:34 UTC
From: Brian Denley <b.denley@comcast.net>
Message-ID: <AOKdnWpFdLCwKEzeRVn-sw@comcast.com>
Source record: 65168

Robert11 wrote:
> Hello:
>
> What's a "good" value for the SF Solar Flux values reported for
> general SWL (30 MHz and below) ?
>
> Is it freq. dependent ? How ?
>
> Thanks,
> B.

Yes it is frequency, time and location dependent. If you haven't already, look up a LUF/MUF calculator and try it out. Inputting the solar flux data, your location and the location of the broadcast transmitter gives you a time graph showing the LUF (least useable frequency) and the the MUF (maximum useable frequency). Simply put, the MUF shows the highest usefull frequency for tranmissions from that location at any particular time. If your desired station frequency is higher than that, forget it. Also, if the LUF is higher than the MUF, you wont be hearing anything from that location until solar conditions (or the time of day) changes. It's an informative way to see how the solar conditions, time of day and propagation path affect what you can hear.

--
Brian Denley
http://home.comcast.net/~b.denley/index.html

708. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 04:45:17 UTC
From: GBrown <gkbrown@gwi.net>
Message-ID: <Q42dnVY9e9WoJkzeRVn-ug@gwi.net>
Source record: 65169
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

And, how do you know that they didn't pay into the system. Was it the color
of there skin, there facial features, or did you have an inside scoop? What
makes you think there not citizens? Part of the problem is jumping to
conclusions.
I do understand your point and it does happen but to just blurt out
statements that mite be false, well.....

--

<hhc314@yahoo.com> wrote in message
news:1137785765.969348.81760@g14g2000cwa.googlegroups.com...
> Same here Cecil.
>
> The young kids don't have a clue about Social Security, because it
> isn't important to them at their time in life, nor was it for me when I
> was 25. None of us ever thought that we would live to see 65, hence it
> was just like income tax, something that you simply had to pay.
>
> The problem is not for us elders, but for the younger people who will
> hopefully someday reach 65. Today, most of these kids don't realize is
> that the fault with the Social Security system is not in its basic
> design, but what I beleve is called SSI that allows anyone regardless
> of age to claim benefits unser Social Security by claiming some form of
> disability, even if they have never contributed to the system.
>
> Just as an example, when I went to the Social Security office to claim
> my earned beneits, I was the only American present in the waiting area
> containing roughly 30 applicants. Most of these individuals were there
> seeking SSI benefits, few were American citizens, and most had never
> paid a dime into the system. This is precisely the problem that Social
> Security faces.
>
> No wonder Social Security is in trouble. It is comparable to a
> corporation that pays dividends to people that don't even own stock in
> the company!
>
> 'Nuff said on that subject.
>
> Curmudgeonly yours, Harry C.
>

709. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 05:27:41 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <kDjAf.22367$xk1.619062@news20.bellglobal.com>
Source record: 65170
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"GBrown" <gkbrown@gwi.net> wrote in message
news:Q42dnVY9e9WoJkzeRVn-ug@gwi.net...
> And, how do you know that they didn't pay into the system. Was it the
color
> of there skin, there facial features, or did you have an inside scoop?
What
> makes you think there not citizens? Part of the problem is jumping to
> conclusions.
> I do understand your point and it does happen but to just blurt out
> statements that mite be false, well.....
>
> --
>
> <hhc314@yahoo.com> wrote in message
> news:1137785765.969348.81760@g14g2000cwa.googlegroups.com...
> > Same here Cecil.
> >
> > The young kids don't have a clue about Social Security, because it
> > isn't important to them at their time in life, nor was it for me when I
> > was 25. None of us ever thought that we would live to see 65, hence it
> > was just like income tax, something that you simply had to pay.

Wow there GBrown,
Don't blast Harry C. He has a point. Up here in the great white north
known as Canada, I have seen deadbeats claim Social Insurance.
They do nothing to contribte to society, they just wait for 'check day'
to pay the rent, and blow the rest on beer and drugs only to be broke
in a day or two until the next month*. My taxes go towards paying them.
Is that right? I think not. Is it the same in the states? If one day I
need to
do the same, rest assured it will NOT be wasted on beer and drugs. I
have paid into this for many years. I would just want something back
from
all the $$$ I had deducted from my pay should I ever need it.
Tom the Canuck.

* Do they eat food? Utilities? I do not know and do not want to..
What they do for the rest of the month is beyond me.

710. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 05:44:31 UTC
From: hhc314@yahoo.com
Message-ID: <1137822271.315866.144350@g47g2000cwa.googlegroups.com>
Source record: 65171
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

GBrown, the fact that they couldn't speak fluent English may have prejudiced my conclusion. It isn't very clear to me why the Social Security offices need interpreters. After all, anyone who has been in this country sufficiently long to seek Social Security benefits should at least be conversant in English, since that is the language that is spoken here.

When you see many people who appear to be under the age of 30 and cannot speak fluent English seeking SSI benefits, the red flag should go up for everyone. Where is the Green Card? Damn, what was wrong with the Ellis Island immigration procedure, and why did the US eliminate it? At that time your entry into the US was judged on your health, skills, and ability to provide for yourself and your family in the United States. During that era, no one came to the US for a free lunch, unlike today.

Realize that unless we secure our borders and return to the strict immigation policies of circa 1910, the US will become a human dumping ground for misfits from the balance of the world, and constructive citizens will no longer be able to support it and flee to other nations who, for the above reasons, close there borders to other than those that can contribute significantly to their country -- and for good reason.

I am pissed off because some of those "new arrivals" are immediately able to collect larger benefits from Social Security than I who have been paying into the system for more than 50 years! Yet, we wonder why Social Security is about to go bankrup! Dhuh!!!!

Sorry for the curmugenous attitude, but the pot of US money has limitations, and I believe that it should first be utilized for the benefit of US Citizens who have contiributed to the system for many decades, and not be wasted on on freeloaders who have obviously never made any contribution to the system.

Curmudgeonly yours, Harry C.

711. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 05:45:58 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <sUjAf.22371$xk1.620633@news20.bellglobal.com>
Source record: 65172
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"John O. Kopf" <kopfj@worldnet.att.net> wrote in message
news:43D181DC.19682475@worldnet.att.net...
> Just forward all of the pyramid scam messages to:
> FEDERAL TRADE COMISSION PYRAMID SCAM PROSECUTION <uce@ftc.gov>
>
> A copy to the sender saying that posting this is a FEDERAL OFFENSE helps
> as well! :>}
>
> JK
>
>

Hey John,
I like your post. Good idea.
What about those telemarketing companies that sell
worthless products from Canada to the US?
There is a telemarketing company in the building where
I worked. Being a smoker, I got to know a few of the
frequently replaced telemarketing sales staff.
The company in question sells a 'directory' of businesses
in the states. While smoking, I asked one of the sales people
what the product they were selling was good for. The reply
was toilet paper. I would tend to agree. I believe there were
several complaints to the attorney general of a particular state(s)
and I had a smile on my face when the local police raided their
place of business. Too bad they were back up and running the
very next week. How can we stop these assholes? It puts a bad
name on Canada. I feel ashamed that they can operate freely here.
Tom the Canuck.

712. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 05:56:12 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <22kAf.22374$xk1.621232@news20.bellglobal.com>
Source record: 65175
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Harry C,
For what it is worth, I stand behind you 100%.
I hope you do not close your borders to your northern neighbours.
Read my post just above yours.
Tom the Canuck.

<hhc314@yahoo.com> wrote in message
news:1137822271.315866.144350@g47g2000cwa.googlegroups.com...
> GBrown, the fact that they couldn't speak fluent English may have
> prejudiced my conclusion. It isn't very clear to me why the Social
> Security offices need interpreters. After all, anyone who has been in
> this country sufficiently long to seek Social Security benefits should
> at least be conversant in English, since that is the language that is
> spoken here.
>
> When you see many people who appear to be under the age of 30 and
> cannot speak fluent English seeking SSI benefits, the red flag should
> go up for everyone. Where is the Green Card? Damn, what was wrong with
> the Ellis Island immigration procedure, and why did the US eliminate
> it? At that time your entry into the US was judged on your health,
> skills, and ability to provide for yourself and your family in the
> United States. During that era, no one came to the US for a free lunch,
> unlike today.
>
> Realize that unless we secure our borders and return to the strict
> immigation policies of circa 1910, the US will become a human dumping
> ground for misfits from the balance of the world, and constructive
> citizens will no longer be able to support it and flee to other nations
> who, for the above reasons, close there borders to other than those
> that can contribute significantly to their country -- and for good
> reason.
>
> I am pissed off because some of those "new arrivals" are immediately
> able to collect larger benefits from Social Security than I who have
> been paying into the system for more than 50 years! Yet, we wonder why
> Social Security is about to go bankrup! Dhuh!!!!
>
> Sorry for the curmugenous attitude, but the pot of US money has
> limitations, and I believe that it should first be utilized for the
> benefit of US Citizens who have contiributed to the system for many
> decades, and not be wasted on on freeloaders who have obviously never
> made any contribution to the system.
>

> Curmudgeonly yours, Harry C.
>

713. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 06:06:49 UTC
From: GBrown <gkbrown@gwi.net>
Message-ID: <6dydnXcJcZzMU0zeRVn-hw@gwi.net>
Source record: 65173
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Harry, I understand your point, completely. I was getting at the fact that how are we to judge who or who isn't eligible for SSI. I worked all my life and it wont be long before I can step up to the SSI office and sign my forms. I wish there were a way to weed out the imposters but you have to start home. There are people in this country, citizens, that take full advantage of the soft hearted liberals and reap the rewards. I really don't know if there is a good fix to and old problem.
Gary
<hhc314@yahoo.com> wrote in message
news:1137822271.315866.144350@g47g2000cwa.googlegroups.com...
> GBrown, the fact that they couldn't speak fluent English may have
> prejudiced my conclusion. It isn't very clear to me why the Social
> Security offices need interpreters. After all, anyone who has been in
> this country sufficiently long to seek Social Security benefits should
> at least be conversant in English, since that is the language that is
> spoken here.
>
> When you see many people who appear to be under the age of 30 and
> cannot speak fluent English seeking SSI benefits, the red flag should
> go up for everyone. Where is the Green Card? Damn, what was wrong with
> the Ellis Island immigration procedure, and why did the US eliminate
> it? At that time your entry into the US was judged on your health,
> skills, and ability to provide for yourself and your family in the
> United States. During that era, no one came to the US for a free lunch,
> unlike today.
>
> Realize that unless we secure our borders and return to the strict
> immigation policies of circa 1910, the US will become a human dumping
> ground for misfits from the balance of the world, and constructive
> citizens will no longer be able to support it and flee to other nations
> who, for the above reasons, close there borders to other than those
> that can contribute significantly to their country -- and for good
> reason.
>
> I am pissed off because some of those "new arrivals" are immediately
> able to collect larger benefits from Social Security than I who have
> been paying into the system for more than 50 years! Yet, we wonder why
> Social Security is about to go bankrup! Dhuh!!!!
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> limitations, and I believe that it should first be utilized for the
> benefit of US Citizens who have contiributed to the system for many

> decades, and not be wasted on on freeloaders who have obviously never
> made any contribution to the system.
>
> Curmudgeonly yours, Harry C.
>

714. Re: Larger size HF antenna's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 06:09:18 UTC
From: "Dr.Ace" <NoSpam@BedfordSucks.com>
Message-ID: <1816$43d1d00b$4fc61f3$6762@DIALUPUSA.NET>
Source record: 65174

"Richard Harrison" <richardharrison@webtv.net> wrote in message
news:12633-43D10574-1718@storefull-3254.bay.webtv.net...
> Congratulations Dr. Ace!
>
> You sure know how
>
> to trash a place!
>
> Best regards, Richard Harrison, KB5WZI
>

Richard,
Yes, that's a fact.
73, Ace - WH2T

715. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 06:18:21 UTC
From: hhc314@yahoo.com
Message-ID: <1137824301.081152.262210@g47g2000cwa.googlegroups.com>
Source record: 65076
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

amdx, you posted:

"And speaking of curmudgeons, Andy Rooney said
" Happy birthday?--I DON'T THINK SO."

I must have missed seeing Andy say that, but it's so true that it made my day! Thank You!

I believe that it's somewhere after the age of 60 that the "Golden Years" are said to begin. In reality, the "Golden Years" consist of stays in the hopital where various parts of you are being removed. For recreation you begin to give things that were once precious to you to good friends. You worry about gas and electric bills, and tax bills, that essentially double yearly, and you're on a fixed income consisting of Social Security and a pension fund (if you have one). One day you realize that you're nearly 70 and no male member of your family has lived for more than 72 years. You still have a sex drive, but your wife hasn't since menopause. Then you realize your mortality and begin to complentate methods of disposing of your remains that don't present a burden on your family, like donating your body to science. When you go asleep at night, you wonder if you will wake up in the morning, since you hope that when you die it will be painless and in your sleep.

On the positive side, what helps to keep my spirit alive are both my Masonic and fireworks friends who both inspire me to accomplishments and dreams, as minimal as they may be. The computer helps a great deal, because the Internet has become what I had imagined 40 years ago -- a vast source of information.

Then too, I have again pontificated far too much, and if you are approaching the, welcome to the Golden Years! :-)

Harry C.

716. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 07:04:17 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <T1lAf.22386$xk1.625098@news20.bellglobal.com>
Source record: 65078
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"SINYpyro" <*removethis*vanquish@earthlink.net> wrote in message
news:X9Vzf.3243$vU2.2707@newsread3.news.atl.earthlink.net...
> Kill yourself?
>
<snip>

Why kill yourself when you can stay alive and fight this crap.
No need to resort to physical violence (I don't like the idea)
but instead use our intelligence to fight back.

Why not swamp the offender's inbox with e-mails.

SUBJECT: "How to make a million dollars easily from your home"

INSTRUCTIONS (body text):
Send me $2.00 by mail and I will send you complete instructions to be rich
quickly.
Please include a stamped self-addressed envelope.

(IMPORTANT: Get a PO Box for the address)

Your snail mail reply:
"WHAT TO SEND TO SUBJECT ON PAPER (they paid for it):"

SNAIL-MAIL SUBJECT:
(use this for your e-mail)
How to make a million dollars easily from your home

What to do to start::
SEND THIS E-MAIL:
Send me $2.00 and I will send you complete instructions to be rich quickly.
Please include a stamped self-addressed envelope.

{Insert your address here}

WHAT TO DO:
Mail the above paper message when you have $2 and envelope.

-

This can also work if you take out a classified ad in a local news paper.
There should be at least 1,000,000 morons in a large metropolis. Just send
the

same info but change it to say 'take out a classified ad'.

-

Why not sell 'solar powered cloths dryers' for $50.
Ship the sucker a cloths line. Technically you are not
in the wrong. It is 'solar powered' after all, unless it is
a cloudy day.

-

Give back some crap to the target who has been cross posting to various NG.
I was amazed to learn I posted to rec.radio.amateur.* groups. Your replies
were
there as well. I may check them out, it has been a long time since I made an
FM
transmitter.

==========
{back to pyro for a moment}

Just a thought, I know about the electric firing panel for pyro displays.
Lots of wires and switches. Is there any need for an RF ignition system?
It could cost a few more $$$ but you eliminate the long run of wires from
the
panel to the pyro items you want to ignite. A secure comm protocol would
prevent ignition by 'outside' sources. A laptop could be added to control
the
timing of events.to be fired. A simple User Interface to make it moron
proof.
What do you guys think? Just looking for ideas. Start another thread if you
like the idea. We can discuss details. I have made embedded systems for
about
the last 20 years. This idea is possible.
==========

Sorry, feeling a bit malicious tonight, (===pyro thought not included===)
Tom the Canuck.

P.S. $2 will NOT work in Canada.
We have those $1 and $2 coins to deal with.
(Maybe up the cost to $5 CDN)
$50 should work out just fine.

717. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 07:18:39 UTC
From: "Dr.Ace" <NoSpam@BedfordSucks.com>
Message-ID: <98d8f$43d1e047$4fc61f3$7169@DIALUPUSA.NET>
Source record: 65077
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

<hhc314@yahoo.com> wrote in message
news:1137822271.315866.144350@g47g2000cwa.googlegroups.com...
> GBrown, the fact that they couldn't speak fluent English may have
> prejudiced my conclusion. It isn't very clear to me why the Social
> Security offices need interpreters. After all, anyone who has been in
> this country sufficiently long to seek Social Security benefits should
> at least be conversant in English, since that is the language that is
> spoken here.
>
> When you see many people who appear to be under the age of 30 and
> cannot speak fluent English seeking SSI benefits, the red flag should
> go up for everyone. Where is the Green Card? Damn, what was wrong with
> the Ellis Island immigration procedure, and why did the US eliminate
> it? At that time your entry into the US was judged on your health,
> skills, and ability to provide for yourself and your family in the
> United States. During that era, no one came to the US for a free lunch,
> unlike today.
>
> Realize that unless we secure our borders and return to the strict
> immigation policies of circa 1910, the US will become a human dumping
> ground for misfits from the balance of the world, and constructive
> citizens will no longer be able to support it and flee to other nations
> who, for the above reasons, close there borders to other than those
> that can contribute significantly to their country -- and for good
> reason.
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> I am pissed off because some of those "new arrivals" are immediately
> able to collect larger benefits from Social Security than I who have
> been paying into the system for more than 50 years! Yet, we wonder why
> Social Security is about to go bankrup! Dhuh!!!!
>
> Sorry for the curmugenous attitude, but the pot of US money has
> limitations, and I believe that it should first be utilized for the
> benefit of US Citizens who have contiributed to the system for many
> decades, and not be wasted on on freeloaders who have obviously never
> made any contribution to the system.
>
> Curmudgeonly yours, Harry C.
>

Harry,
I agree with you. The waves of human parasites flowing into this once great
country are drowning our economy.

SEE
Life Long Welfare for Soon to be Citizens
http://www.islam-online.net/English/News/2004-07/24/article04.shtml

Another situation that comes to mind was the "Lost Boys" from the Sudan. The US flew them over here paid for their housing and all other expenses.
I am not against charity but charity begins at home. We have homeless, jobless, disabled Vets, etc.. that are not taken care of. Why the hell should we as a country bring or allow to enter foreigners that only desire to leach off what little fat is left of our land.
May God bless the U.S.A.
Ace - WH2T

718. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 07:27:18 UTC
From: Tom the Canuck <tvaus@sympatico.ca>
Message-ID: <snlAf.22392$xk1.625803@news20.bellglobal.com>
Source record: 65079
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"GBrown" <gkbrown@gwi.net> wrote in message
news:6dydnXcJcZzMU0zeRVn-hw@gwi.net...
> Harry, I understand your point, completely. I was getting at the fact that
> how are we to judge who or who isn't eligible for SSI. I worked all my
life
> and it wont be long before I can step up to the SSI office and sign my
> forms. I wish there were a way to weed out the imposters but you have to
> start home. There are people in this country, citizens, that take full
> advantage of the soft hearted liberals and reap the rewards. I really
don't
> know if there is a good fix to and old problem.
> Gary

Mr. GBrown,
In a sense I do not care what creed, colour, or nationality a person
comes from.
We are all human and live on this tiny blue marble called Earth.
{yes there are assholes in every group, even yours, ignore them, I do}
Let us judge by what a person does, not where they come from. Does it
matter?
If you contribute to our "society" (needs improvement) they are fine, if
they live off
the labours of others I object. Perhaps we should adopt the thinking
that we are all
one people on this planet. Are you going to blast me because my parents
came from
Estonia? (If you don't know where it is, look it up)
Ignorance and prejudice are rampant on our planet. Can we not do better?
What about your "equality and liberty for all" in your constitution? Did
that include
owning slaves from Africa? Open your eyes, see the world for what it is,
embrace
other ideas from other cultures and learn from them. Tunnel vision is a
downfall for
the existence of mankind.
This is what I think, you may thing otherwise. I can not stop you from
thinking the
way that you do, you can not stop me from thinking my way.
Tom the Canuck.

719. About Benjamin Franklin and Lightning

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 12:59:19 UTC
From: John Westerlage <john_westerlage@sbcglobal.net>
Message-ID: <HeqAf.20986$PL5.15929@newssvr11.news.prodigy.com>
Source record: 65080

While researching lightning protection and grounding
in general I stumbled across the following:

< http://www.physicstoday.org/vol-59/iss-1/p42.html >

Benjamin Franklin's groundbreaking (pun fully intended)
work on the subject.

john, N5DWI

720. Re: About Benjamin Franklin and Lightning

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 13:03:29 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <1sKdnXYDRdG9rE_eRVn-hw@comcast.com>
Source record: 65081

John Westerlage wrote:

>
> While researching lightning protection and grounding
> in general I stumbled across the following:
>
> < http://www.physicstoday.org/vol-59/iss-1/p42.html >
>
> Benjamin Franklin's groundbreaking (pun fully intended)
> work on the subject.
>
> john, N5DWI

The USA Mint is releasing two silver dollar collectables on Franklin;
one, as scientist, the other as statesman. The coins are available in
either Silver Proof or uncirculated condition.

721. comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 19:11:40 UTC
From: ml <m@di.net>
Message-ID: <m-F0D3B3.14114521012006@news.verizon.net>
Source record: 65082

i see this month arrl magazine qst reviews a new hf comet verticle
that dosn't use radials

i am just wondering how does this work?

it specifies that its not a stelar performer has low swr but dosn't
explain the technology"" it uses to 'work' w/o radials

anybody know?

thanks

722. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 20:31:24 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqu5ms$r0f$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65083

```
"ml" <m@di.net> wrote in message
news:m-F0D3B3.14114521012006@news.verizon.net...
> i see this month arrl magazine qst reviews a new hf comet
verticle
> that dosn't use radials
>
> i am just wondering how does this work?
>
> it specifies that its not a stelar performer has low swr but
dosn't
> explain the technology"" it uses to 'work' w/o radials
>
> anybody know?
>
========================================

Yes, whatever the explanation, it's just a load of old wives' tales
and bafflegab.
```

723. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 20:35:13 UTC
From: microwaves@blueyonder.co.uk
Message-ID: <43d29aca.201648655@news.blueyonder.co.uk>
Source record: 65084
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

On 20 Jan 2006 21:44:31 -0800, hhc314@yahoo.com wrote:

>GBrown, the fact that they couldn't speak fluent English may have
^^
>prejudiced my conclusion.

You mean they were from Louisiana :-) ?

724. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 20:36:47 UTC
From: microwaves@blueyonder.co.uk
Message-ID: <43d39b1a.201729381@news.blueyonder.co.uk>
Source record: 65085
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

On 20 Jan 2006 21:44:31 -0800, hhc314@yahoo.com wrote:

>Realize that unless we secure our borders and return to the strict
>immigation policies of circa 1910, the US will become a human dumping
>ground for misfits from the balance of the world,

Those old rules didn't keep out the Mafia immigrants from IT land..

725. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 20:51:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <49xAf.15283$F_3.8561@newssvr29.news.prodigy.net>
Source record: 65086

Reg Edwards wrote:
> Yes, whatever the explanation, it's just a load of old wives' tales
> and bafflegab.

Quoting from the article: "If Comet had claimed that the CHA-250B
was a world-beating miracle antenna, we would have blasted it with
both barrels. Comet doesn't make such claims, however. Comet's
literature merely states that the antenna will radiate a signal
and provide a low SWR on all bands without the use of radials.
In this respect, the CHA-250B performs as advertised. It is neither
a miracle nor a fraud." (The article says it's about equal to a
mobile whip antenna.)
--
73, Cecil http://www.qsl.net/w5dxp

726. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 20:53:21 UTC
From: Charlie <charlie@usc.edu>
Message-ID: <11t57pkj1dmrf54@news.supernews.com>
Source record: 65087

So TRUE.... Check this article on the value of radials
"20db for $48.60"

1.
http://www.dxengineering.com/TechArticles.asp?ID={A46FA56A-2E82-4AF9-9427-6592FC5CFCB7}

--

Charlie-AD5TH
www.deepsouthnet.net

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dqu5ms$r0f$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com...
>
> "ml" <m@di.net> wrote in message
> news:m-F0D3B3.14114521012006@news.verizon.net...
>> i see this month arrl magazine qst reviews a new hf comet
> verticle
>> that dosn't use radials
>>
>> i am just wondering how does this work?
>>
>> it specifies that its not a stelar performer has low swr but
> dosn't
>> explain the technology"" it uses to 'work' w/o radials
>>
>> anybody know?
>>
> ==
>
> Yes, whatever the explanation, it's just a load of old wives' tales
> and bafflegab.
>
>

727. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:33:31 UTC
From: ml <m@di.net>
Message-ID: <m-32A8E0.16332621012006@news.verizon.net>
Source record: 65088

In article <m-F0D3B3.14114521012006@news.verizon.net>, ml <m@di.net>
wrote:

> i see this month arrl magazine qst reviews a new hf comet verticle
> that dosn't use radials
>
> i am just wondering how does this work?
>
> it specifies that its not a stelar performer has low swr but dosn't
> explain the technology"" it uses to 'work' w/o radials
>
>
> anybody know?
>
>
> thanks

i reamain eager for an answer to my question

728. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:52:57 UTC
From: jgboyles@aol.com
Message-ID: <1137880377.666765.324890@g43g2000cwa.googlegroups.com>
Source record: 65089

ml wrote:
> In article <m-F0D3B3.14114521012006@news.verizon.net>, ml <m@di.net>
> wrote:
>
> > i see this month arrl magazine qst reviews a new hf comet verticle
> > that dosn't use radials
> >
> > i am just wondering how does this work?
> >
> > it specifies that its not a stelar performer has low swr but dosn't
> > explain the technology"" it uses to 'work' w/o radials
> >
> >
> > anybody know?
> >
> >
> > thanks
>
> i reamain eager for an answer to my question

Just a guess, but I'll bet that thingey down at the bottom of the
antenna is a resistor. Although it says it doesn't need radials, they
would help, although they might mess up the broadbanded appeal of the
antenna.
Gary N4AST

729. 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:53:57 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <BbWdnVM-DdbIME_enZ2dnUVZ_sidnZ2d@comcast.com>
Source record: 65090

Well, After many trials and much learning I believe the 8405a is currently working and actually making measurements. The breakthrough was a web article showing Tau ranging from -1 to +1. This finally made sense of the comments posted here.

Now to the setup and the measurements. I have built a loaded vertical for 2 meters and placed it over a 3 foot by 5 foot ground screen. The exact frequency of the antenna is unknown. This is assembly moved into another room and connected via an unknown length of 50 Ohm cable. The technique is labor intensive, but in the end produces consistent results.

The 8405a is connected to a dual directional coupler. The connector lengths are tuned to produce zero phase. The coupler is driven by a signal generator and connected to the antenna assembly.

Now the tuning process: It involves tuning the antenna for a zero phase return and then temporally replacing the antenna with a 25 Ohm terminator. The 8405a is set to zero phase adjusted to he terminator. The antenna is then re-substituted for the terminator and the frequency is adjusted to produce the next zero phase. The cycle is the frequency is adjusted to the antenna and the meter zeroed phase adjusted to the terminator. This is repeated.

The first attempt did not resolve. That is it the values did not trend toward a common frequency and phase. However the second attempt, which was just a few MHz away did. The result was a measurement that was consistent and repeatable. The meter was set to the 6 degree scale and the measurements were sensitive to 5 kc differences in frequency. The results were consistent to 1/5 a degree.

The Smith Chart shows for a purely resistive load that the return phase from a fixed cable and frequency is independent of R. That is the return phase is constant for a frequency, fixed cable, and pure resistive load. That would imply that when the phase return is the same for a resistive load and an unknown then the unknown is a pure resistive load. This is a way to normalize the effects of an unknown cable to determine resonance.

I think this actually works. Is there a better way to do this?

Thanks - Dan

730. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:54:23 UTC
From: Red Eyes <noone@home.net>
Message-ID: <E1yAf.9075$TK2.6011@bignews1.bellsouth.net>
Source record: 65091
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

"Peter" <microwaves@blueyonder.co.uk> wrote in message
news:43d39b1a.201729381@news.blueyonder.co.uk...
> On 20 Jan 2006 21:44:31 -0800, hhc314@yahoo.com wrote:
>
>>Realize that unless we secure our borders and return to the strict
>>immigation policies of circa 1910, the US will become a human dumping
>>ground for misfits from the balance of the world,

Oh, you mean like Australia...

731. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:57:07 UTC
From: Red Eyes <noone@home.net>
Message-ID: <c4yAf.9076$TK2.3758@bignews1.bellsouth.net>
Source record: 65092

"Cecil Moore" <mycall@arrl.net> wrote in message
news:49xAf.15283$F_3.8561@newssvr29.news.prodigy.net...
> Reg Edwards wrote:
>> Yes, whatever the explanation, it's just a load of old wives' tales
>> and bafflegab.
>
> Quoting from the article: "If Comet had claimed that the CHA-250B
> was a world-beating miracle antenna, we would have blasted it with
> both barrels. Comet doesn't make such claims, however. Comet's
> literature merely states that the antenna will radiate a signal
> and provide a low SWR on all bands without the use of radials.
> In this respect, the CHA-250B performs as advertised. It is neither
> a miracle nor a fraud." (The article says it's about equal to a
> mobile whip antenna.)
> --
> 73, Cecil http://www.qsl.net/w5dxp

There is a sizable market for such an antenna.

Those living in dwellings with no possibility of running a dipole or a ground plane antenna with radials would be glad to get on the air with this antenna. Naturally, the higher the frequency, the better it will work.

As most of us know, when the higher frequencies are "open", it doesn't take much antenna or power to work the world.

732. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 21:58:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <g8yAf.13418$H71.1298@newssvr13.news.prodigy.com>
Source record: 65093

jgboyles@aol.com wrote:
> Just a guess, but I'll bet that thingey down at the bottom of the
> antenna is a resistor.

The article says it's some resistors and capacitors.
--
73, Cecil http://www.qsl.net/w5dxp

733. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:00:02 UTC
From: Red Eyes <noone@home.net>
Message-ID: <X6yAf.9077$TK2.6354@bignews1.bellsouth.net>
Source record: 65094

<jgboyles@aol.com> wrote in message
news:1137880377.666765.324890@g43g2000cwa.googlegroups.com...
>
> ml wrote:
>> In article <m-F0D3B3.14114521012006@news.verizon.net>, ml <m@di.net>
>> wrote:
>>
>> > i see this month arrl magazine qst reviews a new hf comet verticle
>> > that dosn't use radials
>> >
>> > i am just wondering how does this work?
>> >
>> > it specifies that its not a stelar performer has low swr but dosn't
>> > explain the technology"" it uses to 'work' w/o radials
>> >
>> >
>> > anybody know?
>> >
>> >
>> > thanks
>>
>> i reamain eager for an answer to my question
>
> Just a guess, but I'll bet that thingey down at the bottom of the
> antenna is a resistor. Although it says it doesn't need radials, they
> would help, although they might mess up the broadbanded appeal of the
> antenna.
> Gary N4AST
>

There probably is a resistor shunted across the feedline. I would imagine
that it is emulating a half wave end fed antenna. That should not be too
difficult to manage.

For someone in an impossible situation for a real antenna, it would work
quite satisfactorily. After all, it is either this antenna, or one like it,
or no operation at all.

734. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:03:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <adyAf.13420$H71.6508@newssvr13.news.prodigy.com>
Source record: 65095
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Red Eyes wrote:
> Oh, you mean like Australia...

I saw a special on TV where one lady who had been jailed
in England and exiled to Australia wound up being a very
successful business woman, politician, and wife. Her
progeny now numbers in the hundreds.
--
73, Cecil http://www.qsl.net/w5dxp

735. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:14:30 UTC
From: "John O. Kopf" <kopfj@worldnet.att.net>
Message-ID: <43D2B26F.E715A14B@worldnet.att.net>
Source record: 65096
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Take away their TP! :>}

JK

Tom the Canuck wrote:
>
> SNIP
>
> Hey John,
> I like your post. Good idea.
> What about those telemarketing companies that sell
> worthless products from Canada to the US?
> There is a telemarketing company in the building where
> I worked. Being a smoker, I got to know a few of the
> frequently replaced telemarketing sales staff.
> The company in question sells a 'directory' of businesses
> in the states. While smoking, I asked one of the sales people
> what the product they were selling was good for. The reply
> was toilet paper. I would tend to agree. I believe there were
> several complaints to the attorney general of a particular state(s)
> and I had a smile on my face when the local police raided their
> place of business. Too bad they were back up and running the
> very next week. How can we stop these assholes? <=========

SNIP

736. Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:17:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HpyAf.13426$H71.9215@newssvr13.news.prodigy.com>
Source record: 65097

I'm putting a vertical back up for transmitting and will
probably receive on my horizontal dipole. The vertical
will be mounted on the top of a 30 foot Rohn 25G tower
with the base grounded in cement. The question arose in
my mind whether to connet the drooping elevated radials
to the tower or not. To my surprise, EZNEC says that RF
current flows in the tower whether the radials are
connected to the tower or not. I'm using mininec ground
for the simulation. The radial fields are obviously
inductively coupling to the tower. Does anyone else
worry about such things?
--
73, Cecil http://www.qsl.net/w5dxp

737. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:26:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tyyAf.13429$H71.605@newssvr13.news.prodigy.com>
Source record: 65098
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

John O. Kopf wrote:
> Take away their TP! :>}

I just relax and have fun with telemarketers. If they are
selling something I have to read, I tell them I'm blind
(which is only a half-lie). Whatever it is they are
selling, I'm too handicapped to be able to use it. :-)

For those whose native language is not English, I start
talking in Texan. "Ah reckon Ah ain't cottonin' to
palaverin' with y'all directly". I'll bet Reg would even
have a problem with that one. :-)
--
73, Cecil http://www.qsl.net/w5dxp

738. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:47:20 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <5a773$43d2ba04$97d56b99$16471@ALLTEL.NET>
Source record: 65099
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

I always answer them really loud, then I tell them to hold on while I get my hearing aid. Wait about 5 minutes and say hello again really loud. If they are still there tell them the batteries are dead and to hold while you get new batteries. Wait 5 more minutes and once again loud hello, if they are still there cuss and say you got the wrong batteries and their not working...

You get the idea, totally frustrate them. I have never had one wait beyond the initial getting the hearing aid.

"Cecil Moore" <mycall@arrl.net> wrote in message
news:tyyAf.13429$H71.605@newssvr13.news.prodigy.com...
> John O. Kopf wrote:
> > Take away their TP! :>}
>
> I just relax and have fun with telemarketers. If they are
> selling something I have to read, I tell them I'm blind
> (which is only a half-lie). Whatever it is they are
> selling, I'm too handicapped to be able to use it. :-)
>
> For those whose native language is not English, I start
> talking in Texan. "Ah reckon Ah ain't cottonin' to
> palaverin' with y'all directly". I'll bet Reg would even
> have a problem with that one. :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

739. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-21 22:51:04 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehhzdsnst7000@cnews.newsguy.com>
Source record: 65100

Cecil Moore wrote:

> The question arose in
> my mind whether to connet the drooping elevated radials
> to the tower or not. To my surprise, EZNEC says that RF
> current flows in the tower whether the radials are
> connected to the tower or not.
~~~~~~

There's no reason for the tower to be part of the antenna, so I would suggest not connecting them. Some current will flow in the tower due to close proximity induction, but don't make it worse than necessary. Hopefully the tower is not resonant on any band to avoid additional losses.

Bill, W6WRT
~~~~~~

740. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 00:20:04 UTC
From: jgboyles@aol.com
Message-ID: <1137889204.317662.201900@g47g2000cwa.googlegroups.com>
Source record: 65101

Red Eyes wrote:
> "Cecil Moore" <mycall@arrl.net> wrote in message
> news:49xAf.15283$F_3.8561@newssvr29.news.prodigy.net...
> > Reg Edwards wrote:
> >> Yes, whatever the explanation, it's just a load of old wives' tales
> >> and bafflegab.
> >
> > Quoting from the article: "If Comet had claimed that the CHA-250B
> > was a world-beating miracle antenna, we would have blasted it with
> > both barrels. Comet doesn't make such claims, however. Comet's
> > literature merely states that the antenna will radiate a signal
> > and provide a low SWR on all bands without the use of radials.
> > In this respect, the CHA-250B performs as advertised. It is neither
> > a miracle nor a fraud." (The article says it's about equal to a
> > mobile whip antenna.)
> > --
> > 73, Cecil http://www.qsl.net/w5dxp
>
>
> There is a sizable market for such an antenna.
>
> Those living in dwellings with no possibility of running a dipole or a
> ground plane antenna with radials would be glad to get on the air with this
> antenna. Naturally, the higher the frequency, the better it will work.
>
> As most of us know, when the higher frequencies are "open", it doesn't take
> much antenna or power to work the world.

I have never been a fan of store bought antennas. Never owned one
except a 2m mag mount. I don't know how much this one costs, but I
think there are numerous ways for city dwellers to get more bang for
the buck.
Things I have done: Use a 8-10 foot vertical piece of wire fed with
an "L" network at the base. Work this with your car or pickup as a
ground on 20m-6m. Should work every bit as well as a Comet on these
bands.
On 80m and 40m I have used a 33' vertical in the bed of my truck fed
with an "L" network and had good results. Leads me to believe that the
33' would work well with a modest ground system. The Comet is 22' feet
tall, and I would think a real dog on 80m and 40m.
The only advantage on these bands for the Comet is a broad bandwidth.
I think a 33' vertical with a minimal ground system would beat this
antenna especially on the low bands. Lot cheaper.
Gary N4AST

741. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 03:44:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YcDAf.13592$H71.13338@newssvr13.news.prodigy.com>
Source record: 65102

Bill Turner wrote:
> There's no reason for the tower to be part of the antenna, so I would
> suggest not connecting them. Some current will flow in the tower due to
> close proximity induction, but don't make it worse than necessary.
> Hopefully the tower is not resonant on any band to avoid additional
> losses.

Unfortunately, the tower is close to resonance on 40m, my favorite
band. Even with elevated radials at 30 feet, it is 0.8 dB down
from a ground mounted vertical, according to EZNEC. Guess I'll go
back to my 2x4 support system. Darn!
--
73, Cecil http://www.qsl.net/w5dxp

742. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 04:23:30 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <6NDAf.97704$AP5.43927@edtnps84>
Source record: 65103

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:BbWdnVM-DdblME_enZ2dnUVZ_sidnZ2d@comcast.com...
> Well, After many trials and much learning I believe the 8405a is currently
> working and actually making measurements. The breakthrough was a web
> article showing Tau ranging from -1 to +1. This finally made sense of the
> comments posted here.
>
> Now to the setup and the measurements. I have built a loaded vertical for
> 2 meters and placed it over a 3 foot by 5 foot ground screen. The exact
> frequency of the antenna is unknown. This is assembly moved into another
> room and connected via an unknown length of 50 Ohm cable. The technique is
> labor intensive, but in the end produces consistent results.
>
> The 8405a is connected to a dual directional coupler. The connector
> lengths are tuned to produce zero phase. The coupler is driven by a signal
> generator and connected to the antenna assembly.
>
> Now the tuning process: It involves tuning the antenna for a zero phase
> return and then temporally replacing the antenna with a 25 Ohm terminator.
> The 8405a is set to zero phase adjusted to he terminator. The antenna is
> then re-substituted for the terminator and the frequency is adjusted to
> produce the next zero phase. The cycle is the frequency is adjusted to the
> antenna and the meter zeroed phase adjusted to the terminator. This is
> repeated.
>
> The first attempt did not resolve. That is it the values did not trend
> toward a common frequency and phase. However the second attempt, which was
> just a few MHz away did. The result was a measurement that was consistent
> and repeatable. The meter was set to the 6 degree scale and the
> measurements were sensitive to 5 kc differences in frequency. The results
> were consistent to 1/5 a degree.
>
> The Smith Chart shows for a purely resistive load that the return phase
> from a fixed cable and frequency is independent of R. That is the return
> phase is constant for a frequency, fixed cable, and pure resistive load.
> That would imply that when the phase return is the same for a resistive
> load and an unknown then the unknown is a pure resistive load. This is a
> way to normalize the effects of an unknown cable to determine resonance.
>
> I think this actually works. Is there a better way to do this?
>
> Thanks - Dan

Why are you using a 25 ohm termination? The procedure for calibration requires a short, open, and 50 ohm load. It is also important that you know the coupler directivity at the test frequency. There is nothing wrong with calibrating the test fixture at the end of an unknown length of coax; although you will experience some degradation in the dynamic range of the return loss.

Regards,

Frank

743. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 04:54:28 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dqv364$358$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65105

"Cecil Moore" wrote
> I'm putting a vertical back up for transmitting and will
> probably receive on my horizontal dipole. The vertical
> will be mounted on the top of a 30 foot Rohn 25G tower
> with the base grounded in cement. The question arose in
> my mind whether to connet the drooping elevated radials
> to the tower or not. To my surprise, EZNEC says that RF
> current flows in the tower whether the radials are
> connected to the tower or not. I'm using mininec ground
> for the simulation. The radial fields are obviously
> inductively coupling to the tower. Does anyone else
> worry about such things?
==========

Cec, I'm curious but not surprised. What are the approximate
dimensions?

Height of tower.
Length of vertical radiator.
Number and length of radials.
Any loading coils?

Your discovery of current in the tower should not be surprising. It is
just another radial.

It seems to me there should be negligible loss in the tower. There may
be a very small loss in the ground. The tower is just another
radiator. There will be some effect on the radiation pattern in the
vertical plane. It will affect the so-called take-off angle. It may be
advantageous.

Imagine what might happen if the radials were removed.

Reg, G4FGQ

744. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 04:56:14 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D3106E.4020100@comcast.net>
Source record: 65104

Frank,

The Smith Chart shows that a termination value other then 50 Ohms is required to calibrate the 8405a to zero phase for the frequency and cable. That said there are two zero points, I will have to think about the effect of these on the measurements.

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:BbWdnVM-DdblME_enZ2dnUVZ_sidnZ2d@comcast.com...
>
>>Well, After many trials and much learning I believe the 8405a is currently
>>working and actually making measurements. The breakthrough was a web
>>article showing Tau ranging from -1 to +1. This finally made sense of the
>>comments posted here.
>>
>>Now to the setup and the measurements. I have built a loaded vertical for
>>2 meters and placed it over a 3 foot by 5 foot ground screen. The exact
>>frequency of the antenna is unknown. This is assembly moved into another
>>room and connected via an unknown length of 50 Ohm cable. The technique is
>>labor intensive, but in the end produces consistent results.
>>
>>The 8405a is connected to a dual directional coupler. The connector
>>lengths are tuned to produce zero phase. The coupler is driven by a signal
>>generator and connected to the antenna assembly.
>>
>>Now the tuning process: It involves tuning the antenna for a zero phase
>>return and then temporally replacing the antenna with a 25 Ohm terminator.
>>The 8405a is set to zero phase adjusted to he terminator. The antenna is
>>then re-substituted for the terminator and the frequency is adjusted to
>>produce the next zero phase. The cycle is the frequency is adjusted to the
>>antenna and the meter zeroed phase adjusted to the terminator. This is
>>repeated.
>>
>>The first attempt did not resolve. That is it the values did not trend
>>toward a common frequency and phase. However the second attempt, which was
>>just a few MHz away did. The result was a measurement that was consistent
>>and repeatable. The meter was set to the 6 degree scale and the
>>measurements were sensitive to 5 kc differences in frequency. The results
>>were consistent to 1/5 a degree.
>>
>>The Smith Chart shows for a purely resistive load that the return phase
>>from a fixed cable and frequency is independent of R. That is the return
>>phase is constant for a frequency, fixed cable, and pure resistive load.
>>That would imply that when the phase return is the same for a resistive

>>load and an unknown then the unknown is a pure resistive load. This is a
>>way to normalize the effects of an unknown cable to determine resonance.
>>
>>I think this actually works. Is there a better way to do this?
>>
>>Thanks - Dan
>
>
> Why are you using a 25 ohm termination? The procedure for calibration
> requires a short, open, and 50 ohm load. It is also important that you know
> the coupler directivity at the test frequency. There is nothing wrong with
> calibrating the test fixture at the end of an unknown length of coax;
> although you will experience some degradation in the dynamic range of the
> return loss.
>
> Regards,
>
> Frank
>
>

745. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 07:23:08 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehicwzwtna000@cnews.newsguy.com>
Source record: 65107

Cecil Moore wrote:

> Guess I'll go
> back to my 2x4 support system. Darn!
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

2x4s have served well for years. :-)

Bill, W6WRT
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

746. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 07:35:22 UTC
From: nm5k@wt.net
Message-ID: <1137915322.724857.201990@z14g2000cwz.googlegroups.com>
Source record: 65106

>I'm putting a vertical back up for transmitting and will
>probably receive on my horizontal dipole.

Why? Doesn't make sense. If the vertical is best for
transmit, it should be the best for receive 98% of the time.
And visa versa.. When I ran both a dipole, and a GP,
I almost always transmitted on the antenna that I received
the best signal to whatever path I wanted to work.
If you run a good vertical for DX, and receive on the dipole
you will lose half the advantage of running the vertical
the way I see it.

>The vertical
>will be mounted on the top of a 30 foot Rohn 25G tower
>with the base grounded in cement. The question arose in
>my mind whether to connet the drooping elevated radials
>to the tower or not. Does anyone else
>worry about such things?

I don't think it matters too much as far as the operation
of the antenna. Either will work. But almost all my GP's
had the radials attached to the mounting plate, which in
turn was mounted to the mast. So all mine had the radials
connected to the top of the mast via the mounting.
Same as most any commercial ground plane...
MK

747. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 08:03:35 UTC
From: "Ian White, GM3SEK" <gm3sek@ifwtech.co.uk>
Message-ID: <43D33C57.60303@ifwtech.co.uk>
Source record: 65108

Cecil Moore wrote:
> Bill Turner wrote:
>> There's no reason for the tower to be part of the antenna, so I would
>> suggest not connecting them. Some current will flow in the tower due to
>> close proximity induction, but don't make it worse than necessary.
>> Hopefully the tower is not resonant on any band to avoid additional
>> losses.
>
> Unfortunately, the tower is close to resonance on 40m, my favorite
> band. Even with elevated radials at 30 feet, it is 0.8 dB down
> from a ground mounted vertical, according to EZNEC. Guess I'll go
> back to my 2x4 support system. Darn!

To fix a problem on a single band, you could de-tune the tower with a loop trap - a wire running alongside the tower for part of its height, with a capacitor to bring the whole thing to parallel resonance.

It's described in the antenna books by ON4UN and G6XN (and possibly also in the ARRL Antenna Handbook).

73 from
Ian GM3SEK

--

73 from
Ian GM3SEK

748. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 12:45:30 UTC
From: pledgeasmoke@otmale.com
Message-ID: <K7LAf.14975$0N1.12259@newsfe5-win.ntli.net>
Source record: 65109

An idea,
so if one took a random length say 30 foot length of twin feed,
stuck a big 50 ohm resistor on one end and a ballun to bring it to 50 ohm
resonance at the other,
in the tuner via coax. would it be 50 ohms wide banded because it sees the
50 ohm 'dummy load' at the far end as a match, and radiates a signal 'of
sorts' from the twin feed. If one used the tuner to miss match the
'antenna' The worse the match the more signal would squirt from the feeder.

749. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 13:41:36 UTC
From: "Michael A. Terrell" <mike.terrell@earthlink.net>
Message-ID: <43D38B6C.24B2290C@earthlink.net>
Source record: 65110
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Fred W4JLE wrote:
>
> I always answer them really loud, then I tell them to hold on while I get my
> hearing aid. Wait about 5 minutes and say hello again really loud. If they
> are still there tell them the batteries are dead and to hold while you get
> new batteries. Wait 5 more minutes and once again loud hello, if they are
> still there cuss and say you got the wrong batteries and their not
> working...
>
> You get the idea, totally frustrate them. I have never had one wait beyond
> the initial getting the hearing aid.

Sometimes I let them get all the way through their spiel, then I tell them that it really sounds great and that if I ever get well enough to go back to work, I might be able to buy it It really pisses them off. ;-) Other times I just tell them right away that I am 100% disabled, and in too much pain to put up with them. Of course, being on the national "Do not call list" stopped almost all of those irritating calls. The only problem I have is some deadbeat is, or has given out my phone number when they bought crap on credit. I keep a list of these calls and if I get a second call from a company I scream at them while demanding that they leave me alone, or I will have a lawyer on their ass for trying to collect someone else's debt from me.

The only ones too stupid to listen was "Countrywide" which was some kind of mortgage or lending company who had someone different call each time, from different phone numbers. They finally left a message on my answering machine with an "800" number stating that it was an emergency, but didn't identify themselves. It was their headquarters, and I really tore into them, informing them that I had repeatedly told their phone monkeys they had the wrong phone number, that I was a 100% disabled veteran, and that I was not going to put up with even one more phone call. I laughed and told them that if I did get one, that I would call friends at a TV station to have their local office investigated by their news department for violating a lot of different laws, and that I was going to turn over my hand written logs of all of their calls, along with their misleading telephone message. I asked what they thought that would do to their business in the area, just before I hung up my phone. I never heard from them again. :)

--
Service to my country? Been there, Done that, and I've got my DD214 to prove it.

Member of DAV #85.

Michael A. Terrell
Central Florida

750. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 13:58:55 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <zcMAf.98030$AP5.67414@edtnps84>
Source record: 65111

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43D3106E.4020100@comcast.net...
> Frank,
>
> The Smith Chart shows that a termination value other then 50 Ohms is
> required to calibrate the 8405a to zero phase for the frequency and cable.
> That said there are two zero points, I will have to think about the effect
> of these on the measurements.

Dan,

I am not sure how you arrived at the above conclusion. The procedure should be as follows: Short the end of the coax at the antenna location, then adjust the line stretcher for a 180 degrees phase shift. This is your reference reflection coefficient of -1 (i.e. 1 < 180). Remove the short and verify the reflection coefficient is 1 < 0. Connect a known 50 ohm load, which should provide a return loss of > 30 dB. The angle of the reflection coefficient is irrelevant. If the return loss of the 50 ohm load is significantly less than 30 dB, then either your load is not very good, or you have poor coupler directivity. Attach the antenna, measure, and record, the magnitude and angle of the reflection coefficient. Repeat the procedure for all frequencies of interest. You will then be able to plot the result on the Smith Chart. At the frequencies you are working, which I believe is in the 100 to 200 MHz range, it is doubtful that the non-ideal short/load standards parasitics will effect the results significantly.

I have done such measurements countless times, although with HP VNAs, which makes the procedure far less tedious.

Hope this helps,

Frank

751. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 15:14:41 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <n467t1lckmnl6lc2c28q1e0t1mke67rghk@4ax.com>
Source record: 65112

On 21 Jan 2006 13:52:57 -0800, jgboyles@aol.com wrote:

>
>ml wrote:
>> In article <m-F0D3B3.14114521012006@news.verizon.net>, ml <m@di.net>
>> wrote:
>>
>> > i see this month arrl magazine qst reviews a new hf comet verticle
>> > that dosn't use radials
>> >
>> > i am just wondering how does this work?
>> >
>> > it specifies that its not a stelar performer has low swr but dosn't
>> > explain the technology"" it uses to 'work' w/o radials
>> >
>> >
>> > anybody know?
>> >
>> >
>> > thanks
>>
>> i reamain eager for an answer to my question
>
> Just a guess, but I'll bet that thingey down at the bottom of the
>antenna is a resistor. Although it says it doesn't need radials, they
>would help, although they might mess up the broadbanded appeal of the
>antenna.
>Gary N4AST

Is a resistor used in matching a bad thing? My intuition is that it
is, but I have no math to back up the position.

One of my current projects is to understand the matching problem for
an electrically short vertical.

Using EZNEC+, when I run the SWR function with the radiator (simulated
real ground) I get an indication of Z = R + j. If I add an inductive
load at the bottom of the radiator equal to the j value it brings the
match into a reasonable range. At this point I have not grasped the
relationship of the "R" in the equation. If I use the figure for R
equal to 10% of the XL, the match gets even better, but not 1:1. 10%
comes from the suggested estimate in the help file.

Question 1: What is this "R" thing? I started out thinking it was
series DC resistance and lower is better. My interpretation of the
EZNEC results contradict this position. More "R" seems better.

Question 2: Is this an effective method of matching a 50 ohm line to the vertical radiator?

I do understand this is a math model and it ignores radiation from the inductor.

Question 3: Looking ahead, I think the next matching technique should be an inductor in series with the ground end of the radiator and the ground. The 50 ohm line would feed a tap on the coil 50 ohms up from ground.
Do I compute XL from the bottom to equal 50 or is this strictly a cut & try thing?

I have yet to physically model anything with these tests but I am getting close to it.

I know there are better matching methods than what I am attempting, this is an academic exercise for me!

John Ferrell W8CCW

752. Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 15:29:29 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com>
Source record: 65113

I am getting close to pulling some cable through a 1 1/4 inch PVC conduit that runs about 20 feet from the third floor attic to the basement. The contractor claims the conduit is a "straight shot" with no bends. I have three LMR240 cables with PL259 connectors on each end. And I would also like to pull a 450 ohm length of ladder line. (Measures about 1 inch.) And I would like to pull at least two 16 gage insulated control wires.

Any advice would be appreciated.

Thanks, jimbo

753. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 15:32:03 UTC
From: gb <onw9mapsgb@no.arrl.spam.net>
Message-ID: <tqydneekV8fpOE7eRVn-uA@comcast.com>
Source record: 65114

"jimbo" <jimbo62@spamex.com> wrote in message
news:HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com...
>I am getting close to pulling some cable through a 1 1/4 inch PVC conduit
>that runs about 20 feet from the third floor attic to the basement. The
>contractor claims the conduit is a "straight shot" with no bends. I have
>three LMR240 cables with PL259 connectors on each end. And I would also
>like to pull a 450 ohm length of ladder line. (Measures about 1 inch.) And
>I would like to pull at least two 16 gage insulated control wires.
>
> Any advice would be appreciated.
>
> Thanks, jimbo
>

A Google search should get you the electrical handbooks and codes (e.g.
NEC) for the maximum fill for each conduit size. As a rough rule NEVER
fill a conduit more than 70% to 75%.

gb

754. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 15:57:12 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <sXNAf.3715$rH5.3152@newsread2.news.atl.earthlink.net>
Source record: 65115

"gb" <onw9mapsgb@no.arrl.spam.net> wrote in message
news:tqydneekV8fpOE7eRVn-uA@comcast.com...
> "jimbo" <jimbo62@spamex.com> wrote in message
> news:HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com...
> >I am getting close to pulling some cable through a 1 1/4 inch PVC conduit
> >that runs about 20 feet from the third floor attic to the basement. The
> >contractor claims the conduit is a "straight shot" with no bends. I have
> >three LMR240 cables with PL259 connectors on each end. And I would also
> >like to pull a 450 ohm length of ladder line. (Measures about 1 inch.)
And
> >I would like to pull at least two 16 gage insulated control wires.
> >
> > Any advice would be appreciated.
> >
> > Thanks, jimbo
> >
>
> A Google search should get you the electrical handbooks and codes (e.g.
> NEC) for the maximum fill for each conduit size. As a rough rule NEVER
> fill a conduit more than 70% to 75%.
>

The NEC is mostly for wires for the AC lines. It will not apply for the
antenna wires.

The ladder line is not going to work too well in the conduit with the other
wire. There is a minimum distance that it should be placed from other
conductors.

755. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 16:11:58 UTC
From: John DeGood <nu3e@arrl.net>
Message-ID: <iK2dnZKuIJBcM07enZ2dnUVZ_tOdnZ2d@comcast.com>
Source record: 65116

jimbo wrote:
> I am getting close to pulling some cable through a 1 1/4 inch PVC
> conduit that runs about 20 feet from the third floor attic to the
> basement. The contractor claims the conduit is a "straight shot" with no
> bends. I have three LMR240 cables with PL259 connectors on each end. And
> I would also like to pull a 450 ohm length of ladder line. (Measures
> about 1 inch.) And I would like to pull at least two 16 gage insulated
> control wires.

I specified a similar PVC conduit when our home was built. I simply "dropped" the cables down the conduit from the attic, and let gravity do all the work. If you drop them all down together at the same time you should have no problems. The LMR240 and control wires will be fine, but ladder line in the same conduit with all those other wires probably won't work very well.

73, John NU3E

756. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 16:12:34 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <86GdnSMf7o9wM07eRVn-ig@comcast.com>
Source record: 65117

kenw@n0295no.net wrote:
> On Sun, 22 Jan 2006 08:29:29 -0700, jimbo <jimbo62@spamex.com> wrote:
>
>
>>I am getting close to pulling some cable through a 1 1/4 inch PVC
>>conduit that runs about 20 feet from the third floor attic to the
>>basement. The contractor claims the conduit is a "straight shot" with
>>no bends. I have three LMR240 cables with PL259 connectors on each
>>end. And I would also like to pull a 450 ohm length of ladder line.
>>(Measures about 1 inch.) And I would like to pull at least two 16 gage
>>insulated control wires.
>>
>>Any advice would be appreciated.
>>
>>Thanks, jimbo
>
>
> Tape each cable/PL259 in series behind each other to lower width. I
> don't think the ladder line will work too well if you want to use it
> for transmitting.
>
>
> ---KenW

Thanks for the replies. The ladder line would be used when the other lines were not being used. Does the proximity of other unpowered lines affect the ladder line operation for receive and transmit?

Thanks, jimbo

757. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 17:12:41 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns97535DF6EA03Bspectrumhogstarbandn@198.186.192.196>
Source record: 65118

> I am getting close to pulling some cable through a 1 1/4 inch PVC
> conduit that runs about 20 feet from the third floor attic to the
> basement. The contractor claims the conduit is a "straight shot" with
> no bends. I have three LMR240 cables with PL259 connectors on each
> end. And I would also like to pull a 450 ohm length of ladder line.
> (Measures about 1 inch.) And I would like to pull at least two 16 gage
> insulated control wires.
>
> Any advice would be appreciated.
>

I think you can get those three coax lines down the straight conduit
if you stagger the PL-259 connectors, however, once you have a couple
cables in the conduit, you may find there isn't enough room for a PL-259
to squeeze by, so you may need to remove the connectors, pull the cables
and then reinstall them. Three LMR240s and two control cables are going
to fill that conduit more than you realize!

As far as the Ladder line goes, DON'T ! It will be nearly useless
packed in with all that coax and wire as it needs several inches of
SPACE around it to function properly, with no nearby metal objects. That
coax braid in close proximity will drastically reduce its effectiveness.

Ed K7AAT

758. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 17:29:38 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D3C102.1030805@comcast.net>
Source record: 65119

Frank,

Your comment about my post is correct upon analysis it is not relevant.

I am trying to identify the resonance frequency of an antenna. When that point is found I am trying to measure the input impedance (should be R + 0j).

Assuming 50 Ohm source and cable, the smith chart shows for lengths of cable terminated in values other the 50 Ohms, say 25R 0j, those points will plot of a constant SWR = 2 circle. I am using that circle below:

I am assuming that for a frequency where the antenna is resonant that the phase read from the antenna and the phase read from non 50 Ohm 0j load will be the same. If that is true then 'zeroing' the meter by adjusting the phase offset will not effect the frequency of resonance. It is simply a convenience.

This method should yield a direct resonant frequency reading.

Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D3106E.4020100@comcast.net...
>
>>Frank,
>>
>>The Smith Chart shows that a termination value other then 50 Ohms is
>>required to calibrate the 8405a to zero phase for the frequency and cable.
>>That said there are two zero points, I will have to think about the effect
>>of these on the measurements.
>
>
> Dan,
>
> I am not sure how you arrived at the above conclusion. The procedure should
> be as follows: Short the end of the coax at the antenna location, then
> adjust the line stretcher for a 180 degrees phase shift. This is your
> reference reflection coefficient of -1 (i.e. 1 < 180). Remove the short and
> verify the reflection coefficient is 1 < 0. Connect a known 50 ohm load,
> which should provide a return loss of > 30 dB. The angle of the reflection
> coefficient is irrelevant. If the return loss of the 50 ohm load is
> significantly less than 30 dB, then either your load is not very good, or
> you have poor coupler directivity. Attach the antenna, measure, and record,
> the magnitude and angle of the reflection coefficient. Repeat the procedure
> for all frequencies of interest. You will then be able to plot the result
> on the Smith Chart. At the frequencies you are working, which I believe is

> in the 100 to 200 MHz range, it is doubtful that the non-ideal short/load
> standards parasitics will effect the results significantly.
>
> I have done such measurements countless times, although with HP VNAs, which
> makes the procedure far less tedious.
>
> Hope this helps,
>
> Frank
>
>

759. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 17:52:38 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehj6363ufl4001@cnews.newsguy.com>
Source record: 65125

nm5k@wt.net wrote:

> Why? Doesn't make sense. If the vertical is best for
> transmit, it should be the best for receive 98% of the time.
~~~~~~

Nope. Verticals are notorious for picking up local man-made noise.
Man-made noise starts out with random polarization but the horizontal
component is quickly "shorted out" by the earth's conductivity, leaving
only the vertical polarized component. This is why AM broadcast
stations universally use vertical polarization; better groundwave
coverage. They are not concerned with skywave or local noise.

For skywave, either one works fine, but a horizontal antenna is quieter.

Bill, W6WRT
~~~~~~

760. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 17:55:37 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <phtca3-2gi.ln1@p400bob.personal.cox.net>
Source record: 65122

Yes a very negative effect and not a good idea.. If you look in the history of this NG you will see some numbers about minimum separation distance from other metal.

If you really want to run a balanced feeder you can use two pieces of coax with the shields connected at each end. The Z will be twice that of the original coax. (I use this as a Q section on 20m feeding a loop of about 170 ohms) Dunno about losses in this case (which open wire feeder are great for reducing) and of course the Z is going to be kind of lower than 450r.

Cheers Bob VK2YQA

jimbo wrote:

>
> Thanks for the replies. The ladder line would be used when the other
> lines were not being used. Does the proximity of other unpowered lines
> affect the ladder line operation for receive and transmit?
>
> Thanks, jimbo

761. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 18:08:08 UTC
From: "Larry Gauthier (K8UT)" <MyCallsign@ARRL.NET>
Message-ID: <lSPAf.438$%b1.395@fe04.lga>
Source record: 65123

Jimbo,

It's going to be crowded in that conduit, so don't rely upon gravity to get that stuff down the pipe. Three suggestions:

1. Buy a 25 foot electrician's steel snake (Home Depot, Lowe's, ...), use this to pull the wires through; or drop a length of poly line/guy string as a pull line. If gravity does not get the pull string through the conduit, tie a lightweight object to the line and suck/pull with a leaf blower or vacuum cleaner.

2. Stagger the pl-259's and open cable ends as much as possible so that this looks like a pointed, rather than a blunt, object going through the conduit.

3. When you're pulling the wires into the conduit, do your best at the feed point to keep the wires "straight" and not twisting into the conduit. This takes less space and permits you to do item #4 .

3. ADD A PULL STRING IN THE CONDUIT WITH THE WIRES! So when you're all done, three months from now, and you realize you just want to add one more little 4 conductor cable (or whatever!), you can do it without completely dismantling the cables. {been there, done that}

--
-larry
K8UT
"jimbo" <jimbo62@spamex.com> wrote in message
news:HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com...
>I am getting close to pulling some cable through a 1 1/4 inch PVC conduit
>that runs about 20 feet from the third floor attic to the basement. The
>contractor claims the conduit is a "straight shot" with no bends. I have
>three LMR240 cables with PL259 connectors on each end. And I would also
>like to pull a 450 ohm length of ladder line. (Measures about 1 inch.) And
>I would like to pull at least two 16 gage insulated control wires.
>
> Any advice would be appreciated.
>
> Thanks, jimbo
>

762. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 18:13:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <8XPAf.21173$PL5.4948@newssvr11.news.prodigy.com>
Source record: 65120

Reg Edwards wrote:
> Height of tower.

Approximately 30 feet.

> Length of vertical radiator.

22 feet.

> Number and length of radials.

4 x 22 feet.

> Any loading coils?

No, an SGC-230 at the base.

> Imagine what might happen if the radials were removed.

I imagined that and got very high angle radiation on
some bands. The tower becomes part of the radiator.
--
73, Cecil http://www.qsl.net/w5dxp

763. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 18:18:28 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <U%PAf.21174$PL5.11922@newssvr11.news.prodigy.com>
Source record: 65121

nm5k@wt.net wrote:

>>I'm putting a vertical back up for transmitting and will
>>probably receive on my horizontal dipole.
>
> Why? Doesn't make sense. If the vertical is best for
> transmit, it should be the best for receive 98% of the time.

That's certainly not true at my QTH. The vertical has two
extra S-units of noise on receive compared to my dipole.
I'm assuming the two extra S-units of noise on receive
won't affect my transmitted signal. When I had my 40m
vertical up, I never heard any signal that was better
received on the vertical. +12 dB of noise is virtually
impossible to overcome in actual practice.

> But almost all my GP's
> had the radials attached to the mounting plate, which in
> turn was mounted to the mast.

Conductive mast?
--
73, Cecil http://www.qsl.net/w5dxp

764. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 18:27:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <t8QAf.21178$PL5.4093@newssvr11.news.prodigy.com>
Source record: 65124

jimbo wrote:
> Thanks for the replies. The ladder line would be used when the other
> lines were not being used. Does the proximity of other unpowered lines
> affect the ladder line operation for receive and transmit?

Especially transmit. You will lose a lot of your transmitted
power to the conductors surrounding the ladder-line. Ladder-
line should be run a few inches away from anything.
--
73, Cecil http://www.qsl.net/w5dxp

765. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 20:10:13 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <vip7t1tm9kgsmdcq909vdm86vubfb2fge6@4ax.com>
Source record: 65026

On Sun, 22 Jan 2006 08:29:29 -0700, jimbo <jimbo62@spamex.com> wrote:

>I am getting close to pulling some cable through a 1 1/4 inch PVC
>conduit that runs about 20 feet from the third floor attic to the
>basement. The contractor claims the conduit is a "straight shot" with
>no bends. I have three LMR240 cables with PL259 connectors on each
>end. And I would also like to pull a 450 ohm length of ladder line.
>(Measures about 1 inch.) And I would like to pull at least two 16 gage
>insulated control wires.
>
>Any advice would be appreciated.

Forget the ladder line! It will be a disaster.

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

766. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 20:47:22 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <WoKdnaZkYePJck7enZ2dnUVZ_sidnZ2d@comcast.com>
Source record: 65027

jimbo wrote:
> I am getting close to pulling some cable through a 1 1/4 inch PVC
> conduit that runs about 20 feet from the third floor attic to the
> basement. The contractor claims the conduit is a "straight shot" with no
> bends. I have three LMR240 cables with PL259 connectors on each end. And
> I would also like to pull a 450 ohm length of ladder line. (Measures
> about 1 inch.) And I would like to pull at least two 16 gage insulated
> control wires.
>
> Any advice would be appreciated.
>
> Thanks, jimbo
>

Thanks for the great advice. I will leave the ladder line for another
day, another route from attic to basement.

Thanks, jimbo

767. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 20:48:16 UTC
From: gb <onw9mapsgb@no.arrl.spam.net>
Message-ID: <X6WdnZrqmsgPck7eRVn-qg@comcast.com>
Source record: 65028

"Ralph Mowery" <rmowery28146@earthlink.net> wrote in message
news:sXNAf.3715$rH5.3152@newsread2.news.atl.earthlink.net...
>
> "gb" <onw9mapsgb@no.arrl.spam.net> wrote in message
> news:tqydneekV8fpOE7eRVn-uA@comcast.com...
>> "jimbo" <jimbo62@spamex.com> wrote in message
>> news:HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com...
>> >I am getting close to pulling some cable through a 1 1/4 inch PVC
>> >conduit
>> >that runs about 20 feet from the third floor attic to the basement. The
>> >contractor claims the conduit is a "straight shot" with no bends. I have
>> >three LMR240 cables with PL259 connectors on each end. And I would also
>> >like to pull a 450 ohm length of ladder line. (Measures about 1 inch.)
> And
>> >I would like to pull at least two 16 gage insulated control wires.
>> >
>> > Any advice would be appreciated.
>> >
>> > Thanks, jimbo
>> >
>>
>> A Google search should get you the electrical handbooks and codes (e.g.
>> NEC) for the maximum fill for each conduit size. As a rough rule NEVER
>> fill a conduit more than 70% to 75%.
>>
>
> The NEC is mostly for wires for the AC lines. It will not apply for the
> antenna wires.
>
> The ladder line is not going to work too well in the conduit with the
> other
> wire. There is a minimum distance that it should be placed from other
> conductors.
>
Ralph -

I am not referring to the AC portion of the NEC, RATHER I am trying to
highlight the maximum fill (diameter of each cable and maximum pull).
ever try to "pull conductors" through conduit when this rule is NOT followed
??

I have, it's pain .. in the xxxx.
Easy read and math calculations are minimal with tables supplied --- number
of conductors and O.D. versus the I.D. on conduit.

768. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 21:22:01 UTC
From: nm5k@wt.net
Message-ID: <1137964921.758569.111220@g14g2000cwa.googlegroups.com>
Source record: 65029

>That's certainly not true at my QTH. The vertical has two
extra S-units of noise on receive compared to my dipole.
I'm assuming the two extra S-units of noise on receive
won't affect my transmitted signal. When I had my 40m
vertical up, I never heard any signal that was better
received on the vertical. +12 dB of noise is virtually
>impossible to overcome in actual practice.

If you get two extra units of noise, but the signal comes up
four.... Well, you get it... I didn't get much extra noise going
vertical at this location. The stronger signals always overrode
it. The noise should be a non issue in most cases.
But this also leads to an important question. Do you actually
work long haul paths? If you don't , you probably won't see
much advantage to a vertical. If you listened to long haul dx
paths, and the vertical never beat the dipole, you didn't have
a very good vertical. Actually, I've already pondered on that
in the past. Yours was pretty low, with not many radials
the last time around. The combo of mediocre antenna, and
not using it for long paths is why yours was never better
than the dipole. If I remember right, you weren't even talking
over 1000 miles most times.

> But almost all my GP's
> had the radials attached to the mounting plate, which in
> turn was mounted to the mast.

Conductive mast?

Sure. Grounded at the base too.
MK

769. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 21:23:54 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <ort7t1pq3i1b85itrluk4en5cp8bc67ph9@4ax.com>
Source record: 65030

On Sun, 22 Jan 2006 09:29:38 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>Frank,
>
>Your comment about my post is correct upon analysis it is not relevant.
>
>I am trying to identify the resonance frequency of an antenna. When that point
>is found I am trying to measure the input impedance (should be R + 0j).
>
>Assuming 50 Ohm source and cable, the smith chart shows for lengths of cable
>terminated in values other the 50 Ohms, say 25R 0j, those points will plot of a
>constant SWR = 2 circle.

Only when the cable Zo = 50 +j0.

770. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 21:28:29 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11t7u80f9s1gi0a@corp.supernews.com>
Source record: 65031

Reg Edwards wrote:
>
> . . . . as demonstrated by program RADIALS2
>
> which treats radials as transmission lines. As they truly are.
>. . .

I disagree. Transmission lines have two conductors. Radials don't. The fields from transmission lines are confined to the region between the conductors. The fields from radials can couple quite strongly, altering their performance a great deal. It might be possible to model a radial system as a system of coupled transmission lines. Is that what your program does?

Roy Lewallen, W7EL

771. Re: Lightning Arrestor & Protection Of Receiver ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 21:37:04 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <fcu7t1tlnv8jeahe6pkudp6rl0aaqqkj3p@4ax.com>
Source record: 65032

On Fri, 20 Jan 2006 04:58:48 -0500, "Dr.Ace" <NoSpam@BedfordSucks.com>
wrote:

>
> I use 2 HF antennas, a 272 ft delta loop and a 160 meter band 1/4 wave
>inverted L antenna, both antennas go thru my MFJ-989C Tuner . When I am not
>on the air I leave the antenna switch on the tuner in the "Dummy Load"
>position. That connects a 300 watt 50 ohm resistor to the radio's antenna
>jack and grounds both antennas.

I have the same tuner. Are the antennas really grounded when in dummy
load position? Looking at the circuit diagram, I can see the coax
braid is always grounded, and one side of the balanced line is always
grounded. But are both sides of all antennas grounded when in the
dummy load position? From what I can see, the coax center conductors,
and one side of the balanced line are left floating.

bob
k5qwg

>
>I hope this is of some help.
>
>Ace - www.WH2T.com
>

772. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 21:40:57 UTC
From: nm5k@wt.net
Message-ID: <1137966057.832837.275240@o13g2000cwo.googlegroups.com>
Source record: 65033

>Nope. Verticals are notorious for picking up local man-made noise.
Man-made noise starts out with random polarization but the horizontal component is quickly "shorted out" by the earth's conductivity, leaving only the vertical polarized component. This is why AM broadcast stations universally use vertical polarization; better groundwave coverage. They are not concerned with skywave or local noise.

>For skywave, either one works fine, but a horizontal antenna is quieter.

They don't pick up *that* much more noise. Sometimes the difference would be fairly small. When I ran both the elevated GP, and the dipole,
the antenna that received best, transmitted best nearly all the time. If there were exceptions, they were so rare as not to really remember them. If you are working long haul DX paths, the signal increase of the vertical will override any extra noise. And the increase is almost always higher than the increase of noise. Noise on the vertical was never really an issue here. And I'm in the big city of Houston to boot. When I talked to VK land using both antennas, the vertical would beat the dipole by appx four S units. Both transmit and receive. If the noise
came up an S unit or two, it's a non issue. When working from here to the west coast, ditto, except the difference would be two S units instead of four. Even in those cases, the noise was never high enough to make the dipole the preferred receive antenna. Dunno..I think all this "noisy on a vertical" talk is greatly overstated. Also consider that most of my local noise here is random, and often effects both antennas nearly equally. If you are working long DX and receive on a low dipole, you could be robbing yourself of a lot of received signal to be had. In my case, 4 S units worth to any long haul dx. You telling me I'm gonna see 4 S units of extra noise? Never here at this QTH... Maybe 1 or 2 at best. I *never* wanted to receive on my dipole if I was working long haul off the vertical. Would be like shooting myself in the foot.
MK

773. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 22:02:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11t806t8v6m6mdc@corp.supernews.com>
Source record: 65034

John Ferrell wrote:
>
> Is a resistor used in matching a bad thing? My intuition is that it
> is, but I have no math to back up the position.
>
> One of my current projects is to understand the matching problem for
> an electrically short vertical.
>
> Using EZNEC+, when I run the SWR function with the radiator (simulated
> real ground) I get an indication of Z = R + j. If I add an inductive
> load at the bottom of the radiator equal to the j value it brings the
> match into a reasonable range. At this point I have not grasped the
> relationship of the "R" in the equation. If I use the figure for R
> equal to 10% of the XL, the match gets even better, but not 1:1. 10%
> comes from the suggested estimate in the help file.
>
> Question 1: What is this "R" thing? I started out thinking it was
> series DC resistance and lower is better. My interpretation of the
> EZNEC results contradict this position. More "R" seems better.

Let's suppose that your antenna was a black box instead of an antenna. You connect a source to it and look at the impedance looking into the black box. If the resistive part of the impedance (the R) was zero, the box would contain the equivalent of only an inductor (if the X was positive) or a capacitor (if the X was negative). Although you would measure voltage and current at the box's terminals, you'd find that they were 90 degrees out of phase with each other, and no power would be delivered from the source or consumed by the box. Not the situation you want with an antenna -- you need to deliver power to it so that power can be radiated.

If, on the other hand, you see some R when you look into the box, you can calculate that the power being delivered by the source and consumed by the box is I^2 * R, where I is the RMS current at the box terminals.

So R is always present at an antenna feedpoint at any time the antenna is radiating power, since part of the power "consumed" by the antenna goes toward radiation. This R is called the "radiation resistance". Some part of the power supplied by the source is also actually consumed by heating the wire and ground. This increases the R seen at the feedpoint. That part of the total R is called the "loss resistance".

What you want to do is to maximize the fraction of the power that's radiated, and minimize the fraction that's wasted as heat. So you want to make the ratio of radiation to loss resistance as large as possible.

If you have a short antenna, you'll find you can raise the radiation resistance by lengthening it or adding a top hat. Center loading with a coil also raises the radiation resistance, but you can end up increasing the loss just as much due to coil resistance.

With EZNEC, you can set all losses to zero by setting wire loss and the loss of all loads to zero and, if using a grounded vertical, using MININEC type ground. Then the R you see is only the radiation resistance, and the field strength is that of a 100% efficient antenna. Reintroduce the losses and you'll see the loss resistance added to the radiation resistance at the feedpoint. The field strength will drop according to the reduction in efficiency.

> Question 2: Is this an effective method of matching a 50 ohm line to
> the vertical radiator?

Any resistance you intentionally add will increase the loss resistance without changing the radiation resistance. More of your rig's power will be spent heating the resistor and less will be radiated. In some instances, such as military frequency-hopping applications, the trade of greater bandwidth for less efficiency might be worthwhile. You'll have to decide for yourself whether it is for you. There are certainly a host of other matching methods which are less lossy, but few which can achieve the extreme broadbanded match of a resistor. But don't be fooled into thinking that because the match is broadbanded that you're radiating the same amount of power over the band. The wider the bandwidth, the larger the fraction of your power you'll dissipate in the resistor.

> I do understand this is a math model and it ignores radiation from the
> inductor.

"Loads" don't radiate. Inductors modeled as wires using the helix creation feature do.

> Question 3: Looking ahead, I think the next matching technique should
> be an inductor in series with the ground end of the radiator and the
> ground. The 50 ohm line would feed a tap on the coil 50 ohms up from
> ground.

That's not likely to work.

> Do I compute XL from the bottom to equal 50 or is this strictly a cut
> & try thing?

You don't want an XL of 50, you want the feedline to see an R of 50 with no X, that is, 50 + j0.

> I have yet to physically model anything with these tests but I am
> getting close to it.
>
> I know there are better matching methods than what I am attempting,
> this is an academic exercise for me!

Look into making an L network. It would be a good opportunity to learn how to use the Smith chart, and you'd end up with a low loss matching solution.

Roy Lewallen, W7EL

774. Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 22:10:58 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <HMudneUWRbBGn0nenZ2dnUVZ_tmdnZ2d@comcast.com>
Source record: 65035
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

This question does not fit perfectly into any rec.radio.amateur newsgroup so I'll cross-post it to three groups and hope someone can help me.

The question involves the dangers of RF energy from HF, VHF, and UHF rigs around automobile electronics.

I am installing a Yaesu FT-857D in a 1997 Mazda B4000 truck -- 4.0L V6, 4WD, 5-speed, with extended cab.

The control head for the 857 is separated and mounted on the plastic bezel around the gear shift lever. The rig is mounted on the floor under the driver's seat.

Underneath the truck, on the rocker panel just beneath the seatbelt anchor point, is a factory-made hole in the floor. This hole is closed with a removable rubber plug. I ran the radio's power lead through this rubber plug, along the frame, into the engine compartment where I attached the positive lead to the battery and the negative lead to chassis ground.

I planned to run the antenna leads out through the same hole then run them along the frame into the sidewall of the bed to the rear of the truck where I will mount a VHF/UHF antenna in one rear stake hole and an ATAS-120 in the other rear stake hole, using the GeoTools mount:
http://www.geotool.com/antmount.htm

I took the truck in for service last week and the service advisor gave me a long lecture about keeping the coax away from the air bag and away from the seatbelt retractor. He told me the retractor has a small explosive charge in it that can be set off by radiation from coax. Ditto for the airbag.

The route I planned for the coax takes it right next to the seatbelt retractor and I am now re-thinking my installation. I could route the coax from underneath the driver's seat directly to the back of the cab and drill a hole in the floorboard, centered on the cab at the back wall of the cab, and run the coax out of that hole. This would get a foot or more separation between the coax and the retractor.

I plan to ground the hell out of this installation.
-- The power lead is grounded to the frame in the engine compartment.
-- I have a 10 gauge pigtail -- one end will be bolted under one of the bolts that attaches the seat frame to the floorboard and the other end will be bolted to the 857 chassis.
-- The antenna mounts bolt directly onto the chassis; I will sand off the paint and use star washers to get good contacts at these mounting points.

Also, I will use double-shielded RG-8X for the coax.

I see a lot of trucks like mine (the B4000 is the same truck as the Ford Ranger) with CB installations -- I have never stopped anyone and asked but it seems to me the normal CB installation is nowhere near as good as mine and they don't seem to have problems. Of course, I'm running 100 watts and they are running only 5 (right???).

Has anyone out there had experience with HF mobile installations in the Mazda or Ranger pickups?

Thanks for your assistance.

775. Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 22:41:54 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1137969714.322563.106490@g43g2000cwa.googlegroups.com>
Source record: 65036

Plan is to build a J antenna for 20 meters using 1 inch EMT conduit. Antenna will be supported at the bottom by a 4x4 post in the ground and at the 30+ foot level with a fiberglass bracket bolted to the eve of the house. The upper most section will be a fiberglass 1/2 wl antenna thta used to be used for CB. I am looking for a program that will allow me to calculate deminsions for a project like this. Feedline will be 50 ohm coax.

776. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 23:40:54 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <aKUAf.110025$6K2.82925@edtnps90>
Source record: 65037

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43D3C102.1030805@comcast.net...
> Frank,
>
> Your comment about my post is correct upon analysis it is not relevant.
>
> I am trying to identify the resonance frequency of an antenna. When that
> point is found I am trying to measure the input impedance (should be R +
> 0j).
>
> Assuming 50 Ohm source and cable, the smith chart shows for lengths of
> cable terminated in values other the 50 Ohms, say 25R 0j, those points
> will plot of a constant SWR = 2 circle. I am using that circle below:
>
> I am assuming that for a frequency where the antenna is resonant that the
> phase read from the antenna and the phase read from non 50 Ohm 0j load
> will be the same. If that is true then 'zeroing' the meter by adjusting
> the phase offset will not effect the frequency of resonance. It is simply
> a convenience.
>
> This method should yield a direct resonant frequency reading.
>
> Dan

Dan, The reflection coefficient of 25 ohms is 0.333 <180, so if you do trim the line stretcher for 180 degrees, then attaching the antenna will determine how close you are to nominal R + j0. You need to reset your line stretcher at each frequency until you obtain a 180 degree phase shift on the return loss from the antenna. It is reasonable to assume that your antenna has an impedance in the region of 37 ohms, so the 180 phase shift is probably correct. For the reflection coefficient at 0.333 < 0 the input impedance is 100 ohms. For such an antenna it is probably easer to just tune the antenna for minimum reflection coefficient and forget the phase angle.

Frank

777. Re: what are Microwave Antennas?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 23:57:55 UTC
From: pledgeasmoke@otmale.com
Message-ID: <7_UAf.107837$7p5.32879@newsfe4-win.ntli.net>
Source record: 65038

what are Microwave Antennas?

its wire or steel rod antenna, with a nice sharp point that is long and thin enough, that you can thread your sausages on, you then power up the radio/antenna, and the bangers will cook nicely. Discovered by 'wireless ops using the VHF section of the WW2 WS number 19 Mk 3.

778. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-22 23:58:29 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <F_UAf.1821$2O6.1044@newssvr12.news.prodigy.com>
Source record: 65039

nm5k@wt.net wrote:
> If you listened to long haul dx
> paths, and the vertical never beat the dipole, you didn't have
> a very good vertical.

The vertical was 2 S-units noiser than the dipole. There's no
evidence that, with the same height limits, a monopole vertical
could ever beat a dipole's broadside performance by 12 dB at
any angle.
--
73, Cecil http://www.qsl.net/w5dxp

779. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:07:16 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <U6VAf.4864$vU2.4666@newsread3.news.atl.earthlink.net>
Source record: 65040

```
"gb" <onw9mapsgb@no.arrl.spam.net> wrote in message
news:X6WdnZrqmsgPck7eRVn-qg@comcast.com...
> "Ralph Mowery" <rmowery28146@earthlink.net> wrote in message
> news:sXNAf.3715$rH5.3152@newsread2.news.atl.earthlink.net...
> >
> > "gb" <onw9mapsgb@no.arrl.spam.net> wrote in message
> > news:tqydneekV8fpOE7eRVn-uA@comcast.com...
> >> "jimbo" <jimbo62@spamex.com> wrote in message
> >> news:HvKdnUnMwK5OOU7enZ2dnUVZ_tWdnZ2d@comcast.com...
> >> >I am getting close to pulling some cable through a 1 1/4 inch PVC
> >> >conduit
> >> >that runs about 20 feet from the third floor attic to the basement.
The
> >> >contractor claims the conduit is a "straight shot" with no bends. I
have
> >> >three LMR240 cables with PL259 connectors on each end. And I would
also
> >> >like to pull a 450 ohm length of ladder line. (Measures about 1 inch.)
> > And
> >> >I would like to pull at least two 16 gage insulated control wires.
> >> >
> >> > Any advice would be appreciated.
> >> >
> >> > Thanks, jimbo
> >> >
> >>
> >> A Google search should get you the electrical handbooks and codes (e.g.
> >> NEC ) for the maximum fill for each conduit size. As a rough rule
NEVER
> >> fill a conduit more than 70% to 75%.
> >>
> >
> > The NEC is mostly for wires for the AC lines. It will not apply for the
> > antenna wires.
> >
> > The ladder line is not going to work too well in the conduit with the
> > other
> > wire. There is a minimum distance that it should be placed from other
> > conductors.
> >
> Ralph -
>
> I am not referring to the AC portion of the NEC, RATHER I am trying to
> highlight the maximum fill (diameter of each cable and maximum pull).
```

> ever try to "pull conductors" through conduit when this rule is NOT
followed
> ??
>
> I have, it's pain .. in the xxxx.
> Easy read and math calculations are minimal with tables supplied ---
number
> of conductors and O.D. versus the I.D. on conduit.
>

Yes, I have. I work at a large industral plant. Some of the wire I have pulled has been in 1 inch conduit that was probably 90% full of # 12 wire already. Still needed to get another pair of wires through that. I have cut a couple of wires in the conduit and used them to pull in wire to replace them and two new wires. No room in the conduit to push a snake through and pull the new wire in. Use lots of the wire pulling grease. Most of the wires are control wires and only have about an amp or less on them. We are not worried about overheating the wires in the conduit, but need to add new control circuits to a 40 year old plant. As you said it is a pain.

780. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:12:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KbVAf.1825$2O6.510@newssvr12.news.prodigy.com>
Source record: 65041

nm5k@wt.net wrote:
> I *never* wanted to receive on my dipole
> if I was working long haul off the vertical. Would be like shooting
> myself in the foot.

Sounds like your dipole was not a very good dipole. With
the same height limitation, EZNEC says the vertical will
NEVER be 4 S-units (24 dB) better than the dipole's broadside
performance at any angle.

At http://www.qsl.net/w5dxp/dipvsver.htm is a comparison
of my 130 ft. dipole at 40 ft. with my 33 ft. vertical
with the feedpoint at 20 ft, both on 40m. There's only a
tiny sliver where the vertical beats the dipole broadside
and isn't even close to 24 dB.
--
73, Cecil http://www.qsl.net/w5dxp

781. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:21:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zkVAf.1829$2O6.1695@newssvr12.news.prodigy.com>
Source record: 65042

JIMMIE wrote:
> Plan is to build a J antenna for 20 meters using 1 inch EMT conduit.
> Antenna will be supported at the bottom by a 4x4 post in the ground and
> at the 30+ foot level with a fiberglass bracket bolted to the eve of
> the house. The upper most section will be a fiberglass 1/2 wl antenna
> thta used to be used for CB. I am looking for a program that will allow
> me to calculate deminsions for a project like this. Feedline will be 50
> ohm coax.

You don't need a program. The long element is 3/4 wavelength long. The
shorter parallel element is 1/4 wavelength long. You can short the
two elements together at the bottom and attach your feedline at the
50 ohm point on the two parallel elements. Or you can feed the long
element with the center conductor and the short element with the
braid of the coax. 3/4 wavelength on 20m is about 50 ft.

The free demo version of EZNEC from www.eznec.com will probably model
that antenna.
--
73, Cecil http://www.qsl.net/w5dxp

782. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:30:59 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehjgm42jp0g000@cnews.newsguy.com>
Source record: 65043

nm5k@wt.net wrote:

> Dunno..I think all
> this "noisy on a vertical" talk is greatly overstated.
~~~~~~

Suit yourself, but any serious DXer will tell you there are times when
one dB of S/N ratio would make the difference between QSO and no QSO.

Bill, W6WRT
~~~~~~

783. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:36:57 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehjgrf2rdbu001@cnews.newsguy.com>
Source record: 65044
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Joe S. wrote:

> I plan to ground the hell out of this installation.
~~~~~~

You ought to think the hell out of your grounding plans first.

Remember, "grounding" simply provides a current path that did not exist before. This can be good or it can be bad. Know what current is flowing and where and why. "Grounding" stuff willy-nilly is not good engineering. Make the current go where *you* want it to go or not go.

Bill, W6WRT
~~~~~~

784. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 00:57:16 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns9753ACBC6F0E2spectrumhogstarbandn@198.186.192.196>
Source record: 65045
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

It sounds to me like the only issue you might have is the coax running near that seatbelt retractor. The thing that puzzles me is this guy telling you there is a small explosive charge in the seatbelt retractor. I never heard of such thing in my 30+ years of doing radio installations. I would like to hear from anyone else here who has! I sure have no idea what the purpose of this charge would be.

Ed

785. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 01:42:54 UTC
From: **THE-RFI-EMI-GUY** <rhyolite@nettally.com>
Message-ID: <ywWAf.13204$Zj7.5741@tornado.tampabay.rr.com>
Source record: 65047
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

They are the latest things, called "pre-tensioners" they fire along with
the airbags. I would think that routing the coax as far away as possible
and making sure the radio and the antenna base (and antenna end of coax
shield) are securely grounded would be sufficient.

He should carefully check all options to see if their is a way to avoid
most of the wiring loom in the vehicle.

The use of the stake mounts, concerns me because they might not ensure
mettalic grounding of the antenna. I would make sure the antenna is
grounded to the truck bed and the truck bed to the vehicle frame by
short <1/8 wavelength wires.

Ed wrote:

> It sounds to me like the only issue you might have is the coax running
>near that seatbelt retractor. The thing that puzzles me is this guy
>telling you there is a small explosive charge in the seatbelt retractor. I
>never heard of such thing in my 30+ years of doing radio installations. I
>would like to hear from anyone else here who has! I sure have no idea
>what the purpose of this charge would be.
>
>
> Ed
>
>

--
Joe Leikhim K4SAT
"The RFI-EMI-GUY"ï¿½

"Treason doth never prosper: what's the reason?
For if it prosper, none dare call it treason."

"Follow The Money" ;-P

786. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 01:54:22 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <iHWAf.23193$PL5.5769@newssvr11.news.prodigy.com>
Source record: 65046

Run the Ladder line to near the entrance of the PVC, and then use a
BALUN, to COAX, for the run down your PVC, BUT remember: PVC stands
for: PIPE VERY CROWDED! Jim NN7K

Dan Richardson wrote:
> On Sun, 22 Jan 2006 08:29:29 -0700, jimbo <jimbo62@spamex.com> wrote:
>
>
>>I am getting close to pulling some cable through a 1 1/4 inch PVC
>>conduit that runs about 20 feet from the third floor attic to the
>>basement. The contractor claims the conduit is a "straight shot" with
>>no bends. I have three LMR240 cables with PL259 connectors on each
>>end. And I would also like to pull a 450 ohm length of ladder line.
>>(Measures about 1 inch.) And I would like to pull at least two 16 gage
>>insulated control wires.
>>
>>Any advice would be appreciated.
>
>
> Forget the ladder line! It will be a disaster.
>
>
>
>
>
>
> email: k6mhe<at>arrl<dot>net
> http://www.k6mhe.com/

787. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:01:42 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D45526.3030903@comcast.net>
Source record: 65048

I am assuming the reflection angle of 0j terminations would all be the same (you said <180), this includes both resistive loads and an antenna at resonance. The method I am using relies on that.

I am confused about one thing in the smith chart program. Cables identified as stubs create a circle that goes through infinity and do not exhibit a constant SWR, while simple cables create a constant SWR circle with the center and 50 Ohm 0j.

I believe the setup I am testing exhibits the constant SWR characteristic.

Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D3C102.1030805@comcast.net...
>
>>Frank,
>>
>>Your comment about my post is correct upon analysis it is not relevant.
>>
>>I am trying to identify the resonance frequency of an antenna. When that
>>point is found I am trying to measure the input impedance (should be R +
>>0j).
>>
>>Assuming 50 Ohm source and cable, the smith chart shows for lengths of
>>cable terminated in values other the 50 Ohms, say 25R 0j, those points
>>will plot of a constant SWR = 2 circle. I am using that circle below:
>>
>>I am assuming that for a frequency where the antenna is resonant that the
>>phase read from the antenna and the phase read from non 50 Ohm 0j load
>>will be the same. If that is true then 'zeroing' the meter by adjusting
>>the phase offset will not effect the frequency of resonance. It is simply
>>a convenience.
>>
>>This method should yield a direct resonant frequency reading.
>>
>>Dan
>
>
> Dan, The reflection coefficient of 25 ohms is 0.333 <180, so if you do trim
> the line stretcher for 180 degrees, then attaching the antenna will
> determine how close you are to nominal R + j0. You need to reset your line
> stretcher at each frequency until you obtain a 180 degree phase shift on the
> return loss from the antenna. It is reasonable to assume that your antenna

> has an impedance in the region of 37 ohms, so the 180 phase shift is
> probably correct. For the reflection coefficient at 0.333 < 0 the input
> impedance is 100 ohms. For such an antenna it is probably easer to just
> tune the antenna for minimum reflection coefficient and forget the phase
> angle.
>
> Frank
>
>

788. Re: Pulling Cable in Conduit

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:16:15 UTC
From: gb <onw9mapsgb@no.arrl.spam.net>
Message-ID: <NsydnRQDspIMxUneRVn-iA@comcast.com>
Source record: 65049

"Ralph Mowery" <rmowery28146@earthlink.net> wrote in message
news:U6VAf.4864$vU2.4666@newsread3.news.atl.earthlink.net...
>> Ever try to "pull conductors" through conduit when this rule is NOT
> followed ??
>>
>> I have, it's pain .. in the xxxx.
>> Easy read and math calculations are minimal with tables supplied ---
> number
>> of conductors and O.D. versus the I.D. on conduit.
>>
>
> Yes, I have. I work at a large industral plant. Some of the wire I have
> pulled has been in 1 inch conduit that was probably 90% full of # 12 wire
> already. Still needed to get another pair of wires through that. I have
> cut a couple of wires in the conduit and used them to pull in wire to
> replace them and two new wires. No room in the conduit to push a snake
> through and pull the new wire in. Use lots of the wire pulling grease.
> Most of the wires are control wires and only have about an amp or less on
> them. We are not worried about overheating the wires in the conduit, but
> need to add new control circuits to a 40 year old plant. As you said it
> is
> a pain.
>
Ha ha ha .. well we did follow up work behind the same guy !! :-)

Sadly, the grease did not help in one of my situations with 3/4" conduit ..
had to finally tear out of wall and then replace with 2 conduits for the
wire runs.

gb

789. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:25:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dVYAf.13777$H71.3930@newssvr13.news.prodigy.com>
Source record: 65050

dansawyeror wrote:
> I am assuming the reflection angle of 0j terminations would all be the
> same (you said <180), this includes both resistive loads and an antenna
> at resonance. The method I am using relies on that.
>
> I am confused about one thing in the smith chart program. Cables
> identified as stubs create a circle that goes through infinity and do
> not exhibit a constant SWR, while simple cables create a constant SWR
> circle with the center and 50 Ohm 0j.
>
> I believe the setup I am testing exhibits the constant SWR characteristic.

No real-world transmission line exhibits a constant SWR since
no real-world transmission line is lossless. Constant SWR
circles are approximations. The actual SWR curve is a spiral
from a point on that constant SWR circle that, in the limit,
spirals down to the Z0 of the line.

For instance, using Owen's feedline calculator, the SWR at a
500 ohm antenna fed with 100 feet of RG-58A is 10:1 and the
SWR at the other (source) end is 1.42:1 for 146 MHz.
--
73, Cecil http://www.qsl.net/w5dxp

790. Re: looking for antenna recommendation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:31:47 UTC
From: TimPerry <timperry@noaspamadelphia.net>
Message-ID: <GKCdnbgut-TawUneRVn-vA@adelphia.com>
Source record: 65051

<greg@littlebear.com> wrote in message
news:1137691091.471022.293300@z14g2000cwz.googlegroups.com...
> I'm looking for a recommendation for an external antenna to use with my
>
> Yaesu VX-7R handheld.
>
> This antenna would spend most of its life on a bicycle (on a rear rack
> behind the seat), which is how I commute to/from work. However, I'd
> like to be able to use it occasionally on a car/truck so I'm thinking a
>
> magnetic base would be the most flexible.
>
> Ideally it would cover all of the VX-7R's bands, or at least the
> 6M/2M/70CM bands and it would have a cable with an SMA connector at the
>
> end.
>
> Ideally it would be something like Diamond's CR627B antenna
> (http://www.rfparts.com/diamond/cr627b.html) but without needing a
> triplexor and with a magnet mount.
>
> Now I realize that such a thing might not exist which is why I'm open
> to suggestions that I drop the 6M band requirement which would lose me
> the grounding requirement which would lose me the restriction against
> magnet mount.
>
> Ideas?
>
> greg
>

just a question. what would the antenna get you that you don't already have
with the HT antenna when used on a bicycle? (aside from loss in the coax
cable)

if it was tall enough i guess you could put an orange flag on it :)

791. Re: looking for antenna recommendation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:44:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zaZAf.13780$H71.4973@newssvr13.news.prodigy.com>
Source record: 65052

TimPerry wrote:
> if it was tall enough i guess you could put an orange flag on it :)

I used a Pico-J taped to a fiberglas flag pole
on my bicycle - worked great.
--
73, Cecil http://www.qsl.net/w5dxp

792. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 04:57:20 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <QmZAf.103796$AP5.33287@edtnps84>
Source record: 65053

>I am assuming the reflection angle of 0j terminations would all be the same
>(you said <180), this includes both resistive loads and an antenna at
>resonance. The method I am using relies on that.
>
> I am confused about one thing in the smith chart program. Cables
> identified as stubs create a circle that goes through infinity and do not
> exhibit a constant SWR, while simple cables create a constant SWR circle
> with the center and 50 Ohm 0j.
>
> I believe the setup I am testing exhibits the constant SWR characteristic.
>
> Dan

Dan, if the load is resistive, and less than 50 ohms (assuming the center of the Smith Chart is considered to be 50 ohms), then the angle of the reflection coefficient is 180 degrees. If the load is resistive, and greater than 50 ohms, then the reflection coefficient angle is 0 degrees. As you approach the center of the Smith Chart the angle becomes less and less relevant.

Shunt stubs - either open or shorted - always pass through "zero" (And infinity - which you will not see since it is in parallel with the load impedance) and the selected impedance on the Smith Chart. This is based on the effect that an open stub, at quarter wave multiples, will exhibit successive open and short circuits; as will a shorted stub.

Your method will exhibit a constant reflection coefficient circle (and VSWR), with the angle varying from 180 degrees through zero degrees and then back, through negative angles, to 180 degrees.

Frank

793. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 05:23:58 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D4686E.6000408@comcast.net>
Source record: 65054

Frank, this is consistent with what I am observing. The claim is for a given frequency when a 0j load (in the range of 10 to 40 Ohms) and an unknown load (assumed to be in the range of 10 to 40 Ohms) show the same phase shift then the unknown is 0j also. It is not necessary that the loads be the same value, only within the range. (I will have to experiment with loads over 60.)

So far nothing has surfaced to contradict this.

Thanks - Dan

> Your method will exhibit a constant reflection coefficient circle (and
> VSWR), with the angle varying from 180 degrees through zero degrees and then
> back, through negative angles, to 180 degrees.
>
> Frank
>
>

794. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 06:45:29 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1137998729.302357.288870@g44g2000cwa.googlegroups.com>
Source record: 65055

Thanks Cecil, I was concerned about spacing of the stub more than anything else. I guesstimated this should be about a foot. I also know I could be totally wrong. By looking at some plans the distance between the short and long tubes seems to vary with the frequency and size of the tube. Doubt if it is too critical. I downloaded EZNEC a few years ago and could never figure out how to use it.

795. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 07:18:07 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <bl09t1927ufrlrj6b72em6fkpvt496mek4@4ax.com>
Source record: 65056

On Fri, 20 Jan 2006 01:14:18 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>such illusions. The association with the necessity of being a quarter
>wave long comes by the field data obtained by Brown, Lewis, and
>Epstein. This was simply an arbitrary selection born more of the
>available wire being portioned out in binary increasing counts
>(2,4,8,16....) such that 119 radials depleted their stock (short of
>that magic 128). Their work has been offered on the web through the
>interests of our discussions here, and by one or several
>correspondent's scanning and posting their report. Google this
>newsgroup for that link using the authors as a keyword search. This
>was offered last summer.

Thanks, yes I have read the BLE paper.

Owen
--

796. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 07:21:21 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <3o09t1966bj52hmrh781d1fbaq9cd3upem@4ax.com>
Source record: 65057

On Sat, 21 Jan 2006 00:55:13 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Very sorry Owen. My mistake.
>
>The name of the program is RADIALS2.
>
>It deals only with buried radials.

Ok, I have had a play with it (again).

>
>I am at present trying to write a program about coil-loaded
>counterpoises and artificial grounds at low heights. But it's a beast
>to model mathematically.

I wish you would explain the models a bit more in these tools, so that
the user can have a better understanding of the approach and its
applicability to the problem.

Owen
--

797. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 07:29:11 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ut09t11cj888818n057rnj0o1j9g44up7d@4ax.com>
Source record: 65058

On Thu, 19 Jan 2006 22:19:04 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>I found a much more compelling report in:
>UNITED STATES DEPARTMENT OF AGRICULTURE
>Rural Electrification Administration
>REA BULLETIN 1751F-802
>SUBJECT: Electrical Protection Grounding Fundamentals
>Which is vastly more comprehensive and directly answers these
>questions when viewed in the terms of the resistivity of the earth
>connection.

Thanks Richard, I have read the document quickly overall, and a bit
more detailed in some key areas.

It covers similar material to documents I collected when studying
power earthing and lighting protections in years past, but it is a bit
more comprehensive... so a good read and a good reference document.

One good pickup was the functions for predicting the low frequency
resistance of shallow buried radials (which is relevant when radial
wires are required to provide a level of power / lightning protection.
I created a graph to add to an existing web page from the functions
for 3mm (bare) wires buried 0.1m, the graph is at
http://www.vk1od.net/post/earth02a.gif . (For avoidance of doubt, this
graph does not predicting the RF characteristics of the radials.)

Tks...

Owen

PS apologies for the delay in responding, I have been up to the big
smoke (the city... Sydney) over the weekend... reminds me of why I
left there thirty something years ago.
--

798. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 10:22:56 UTC
From: JackKetch@otmale.com
Message-ID: <482Bf.49180$W4.45654@newsfe4-gui.ntli.net>
Source record: 65059

Your mind is already made up. Do as you like.

I note that you decline to substantiate the reasons underlying your advice.
Hello sir, maybe YOU should nip in the yard with a shovel and some wire
(don't forget your strippers) and do some tests yourself! old man

799. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 12:06:35 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43d4c60f_4@newsfeed.slurp.net>
Source record: 65060

"Owen Duffy" wrote
> One good pickup was the functions for predicting the low frequency
> resistance of shallow buried radials (which is relevant when radial
> wires are required to provide a level of power / lightning protection.

_____

For those using buried radials as one terminal of a vertical monopole...

The only path consisting of physical conductors that can exist between a series-fed vertical monopole and buried, uninsulated radials is through the PA output, and the antenna matching network at the tower base. This is not adequate to control/prevent system damage from lightning.

Three added techniques are used in most MW broadcast applications:

1. A "static drain choke" is installed between the tower base and the junction of the radials.

2. An arc gap is installed across the base insulator and set to flash over at some margin above normal peak voltage

3. The tx contains r-f phase sensors that kill tx output for a few milliseconds after an arc is sensed, so as not to sustain it.

RF

800. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 12:18:01 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <3rh9t1hgb7g59qpou6kgqraaaji06j56bn@4ax.com>
Source record: 65061

Thank you!
I believe you have pointed the way to get me back on track.
I have only studied Smith Charts enough to pass tests. I think I best
start there and with the L-Network.

I also better revisit the antenna material in the ARRL antenna course.
I missed some things very basic there.

On Sun, 22 Jan 2006 14:02:03 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>John Ferrell wrote:
>>
>> Is a resistor used in matching a bad thing? My intuition is that it
>> is, but I have no math to back up the position.
>>
>> One of my current projects is to understand the matching problem for
>> an electrically short vertical.
>>
>> Using EZNEC+, when I run the SWR function with the radiator (simulated
>> real ground) I get an indication of Z = R + j. If I add an inductive
>> load at the bottom of the radiator equal to the j value it brings the
>> match into a reasonable range. At this point I have not grasped the
>> relationship of the "R" in the equation. If I use the figure for R
>> equal to 10% of the XL, the match gets even better, but not 1:1. 10%
>> comes from the suggested estimate in the help file.
>>
>> Question 1: What is this "R" thing? I started out thinking it was
>> series DC resistance and lower is better. My interpretation of the
>> EZNEC results contradict this position. More "R" seems better.
>
>Let's suppose that your antenna was a black box instead of an antenna.
>You connect a source to it and look at the impedance looking into the
>black box. If the resistive part of the impedance (the R) was zero, the
>box would contain the equivalent of only an inductor (if the X was
>positive) or a capacitor (if the X was negative). Although you would
>measure voltage and current at the box's terminals, you'd find that they
>were 90 degrees out of phase with each other, and no power would be
>delivered from the source or consumed by the box. Not the situation you
>want with an antenna -- you need to deliver power to it so that power
>can be radiated.
>
>If, on the other hand, you see some R when you look into the box, you
>can calculate that the power being delivered by the source and consumed
>by the box is I^2 * R, where I is the RMS current at the box terminals.

>
>So R is always present at an antenna feedpoint at any time the antenna
>is radiating power, since part of the power "consumed" by the antenna
>goes toward radiation. This R is called the "radiation resistance". Some
>part of the power supplied by the source is also actually consumed by
>heating the wire and ground. This increases the R seen at the feedpoint.
>That part of the total R is called the "loss resistance".
>
>What you want to do is to maximize the fraction of the power that's
>radiated, and minimize the fraction that's wasted as heat. So you want
>to make the ratio of radiation to loss resistance as large as possible.
>If you have a short antenna, you'll find you can raise the radiation
>resistance by lengthening it or adding a top hat. Center loading with a
>coil also raises the radiation resistance, but you can end up increasing
>the loss just as much due to coil resistance.
>
>With EZNEC, you can set all losses to zero by setting wire loss and the
>loss of all loads to zero and, if using a grounded vertical, using
>MININEC type ground. Then the R you see is only the radiation
>resistance, and the field strength is that of a 100% efficient antenna.
>Reintroduce the losses and you'll see the loss resistance added to the
>radiation resistance at the feedpoint. The field strength will drop
>according to the reduction in efficiency.
>>
>> Question 2: Is this an effective method of matching a 50 ohm line to
>> the vertical radiator?
>
>Any resistance you intentionally add will increase the loss resistance
>without changing the radiation resistance. More of your rig's power will
>be spent heating the resistor and less will be radiated. In some
>instances, such as military frequency-hopping applications, the trade of
>greater bandwidth for less efficiency might be worthwhile. You'll have
>to decide for yourself whether it is for you. There are certainly a host
>of other matching methods which are less lossy, but few which can
>achieve the extreme broadbanded match of a resistor. But don't be fooled
>into thinking that because the match is broadbanded that you're
>radiating the same amount of power over the band. The wider the
>bandwidth, the larger the fraction of your power you'll dissipate in the
>resistor.
>
>> I do understand this is a math model and it ignores radiation from the
>> inductor.
>
>"Loads" don't radiate. Inductors modeled as wires using the helix
>creation feature do.
>
>> Question 3: Looking ahead, I think the next matching technique should
>> be an inductor in series with the ground end of the radiator and the
>> ground. The 50 ohm line would feed a tap on the coil 50 ohms up from
>> ground.

>
>That's not likely to work.
>
>> Do I compute XL from the bottom to equal 50 or is this strictly a cut
>> & try thing?
>
>You don't want an XL of 50, you want the feedline to see an R of 50 with
>no X, that is, 50 + j0.
>
>> I have yet to physically model anything with these tests but I am
>> getting close to it.
>>
>> I know there are better matching methods than what I am attempting,
>> this is an academic exercise for me!
>
>Look into making an L network. It would be a good opportunity to learn
>how to use the Smith chart, and you'd end up with a low loss matching
>solution.
>
>Roy Lewallen, W7EL
John Ferrell W8CCW

801. Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 13:32:40 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <udCdnVAFZploR0nenZ2dnUVZ_t2dnZ2d@comcast.com>
Source record: 65062

Hello:

Don't have a good feeling for the significance of this:

For a receive only application, using coax from the Balun of a simple
outside antenna to the receiver,
is a loss of, e.g., 2.5 db "meaningful" ?

Specifics would be 100 feet of RG 58 at 30 MHz

Or is it worth the extra $ to go to a less lossy coax (application would
always be for receive only)

BTW: R/S Coax a decent quality ?

Thanks,
B.

802. Radial Grounds

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 14:12:19 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43d4e387_5@newsfeed.slurp.net>
Source record: 65063

The link below leads to a very good paper on this topic written by LB Cebik, and illustrated with many plots and graphs.

http://www.cebik.com/gp/gr.html

803. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 14:13:08 UTC
From: John Passaneau <jxp16@psu.edu>
Message-ID: <dr2o9k$140u$1@f04n12.cac.psu.edu>
Source record: 65064

"Robert11" <rgsros@notme.com> wrote in message
news:udCdnVAFZploR0nenZ2dnUVZ_t2dnZ2d@comcast.com...
> Hello:
>
> Don't have a good feeling for the significance of this:
>
> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver,
> is a loss of, e.g., 2.5 db "meaningful" ?
>
> Specifics would be 100 feet of RG 58 at 30 MHz
>
> Or is it worth the extra $ to go to a less lossy coax (application would
> always be for receive only)
>
> BTW: R/S Coax a decent quality ?
>
> Thanks,
> B.
>
>

The answer is, maybe. If the signal level of the stations you wish to hear
are strong, then -2.5db will not mean anything as receivers have a lot of
gain, but if the signals are weak then -2.5db can mean the difference
between hearing or not hearing a signal. Be aware that the loss figures for
coax are for a matched system, that is 50 ohms in/out. If the load is not 50
ohms, then the loss of the cable will be higher and the worse the miss match
the higher the excess loss will be. It can be allot. I've seen for severe
miss match excess loss of up to 20db.
As for R/S coax is not known for being of high quality nor is it consistent
in its quality.

--
John Passaneau, W3JXP
Penn State University
w3jxp@arrl.net

804. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 14:36:51 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <7S5Bf.2441$zh2.1910@trnddc01>
Source record: 65065

"JIMMIE" <JIMMIEDEE123@YAHOO.COM> wrote in message
news:1137969714.322563.106490@g43g2000cwa.googlegroups.com...
> Plan is to build a J antenna for 20 meters using 1 inch EMT conduit.
> Antenna will be supported at the bottom by a 4x4 post in the ground and
> at the 30+ foot level with a fiberglass bracket bolted to the eve of
> the house. The upper most section will be a fiberglass 1/2 wl antenna
> thta used to be used for CB. I am looking for a program that will allow
> me to calculate deminsions for a project like this. Feedline will be 50
> ohm coax.
>
Why not build an end fed 1/2 wave antenna and forget about the mechanics of
the 1/4 wave matching section and the problems of its height? IMHO, a simple
L or Pi network in a WX proof box with a 33' vertical would be a lot easier
to construct and adjust than a 50' tall antenna.

Dale

805. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 14:38:42 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <jc6fa3-6jk.ln1@p400bob.personal.cox.net>
Source record: 65068

Robert/Bob

In a receive application it is only important that the signal you want to hear exceeds the level of total system noise by a desired amount. In your case atmospheric noise is likely to be far above that of whatever the receiver front end contributes.

Having said that my HF/6m TXCVR has a preamp that can be used on 10M with a slight useful effect. I'd suspect that this is a design problem as the same model w/out 6m doesnt have it.

My answer is no, the 2.5dB can be ignored. You may want to consider though how you should site/feed the antenna to obtain a good s/n ratio from the desired signals.

I personally wouldnt touch RS coax but I have no evidence to back up my thought that it is technically inferior. Just that they tend to buy things cheap and there is a lot of rubbishy coax around. I might go to the "Wireman" or direct to a well known manufacturers (Belden S&H etc) retailer.

Cheers Bob VK2YQA

Robert11 wrote:

> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver,
> is a loss of, e.g., 2.5 db "meaningful" ?

> BTW: R/S Coax a decent quality ?

806. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 14:50:39 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <jsq9t1ds764n188hv79118i4un6pvfomhd@4ax.com>
Source record: 65066

On Mon, 23 Jan 2006 08:32:40 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>Don't have a good feeling for the significance of this:
>
>For a receive only application, using coax from the Balun of a simple
>outside antenna to the receiver,
>is a loss of, e.g., 2.5 db "meaningful" ?
>
>Specifics would be 100 feet of RG 58 at 30 MHz
>
>Or is it worth the extra $ to go to a less lossy coax (application would
>always be for receive only)
>
>BTW: R/S Coax a decent quality ?

The last time I bought Radio Shack coax cable, the shield was so
thinly populated with wire, it was almost nonexistant.

You might try some of your local computer stores that deal with
networking installations. They frequently carry good quality coax with
brand names like Beldon. (One of my local computer stores has Beldon
RG-58U at 22 cents a foot.)

Good mail order places for coax would include Davis RF, The Wireman,
RadioWorks, Amateur Electronic Supply, HRO, etc...

bob
k5qwg
>
>Thanks,
>B.
>

807. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:04:28 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <66idnRrSFeXkbUneRVn-rQ@comcast.com>
Source record: 65067
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

I use the through hole in the floor of my Ranger [Ford] as you describe.

Coax should have no rf current on the outside of the cable assuming a
good ground at the antenna.

Joe S. wrote:
> This question does not fit perfectly into any rec.radio.amateur newsgroup so
> I'll cross-post it to three groups and hope someone can help me.
>
> The question involves the dangers of RF energy from HF, VHF, and UHF rigs
> around automobile electronics.
>
> I am installing a Yaesu FT-857D in a 1997 Mazda B4000 truck -- 4.0L V6, 4WD,
> 5-speed, with extended cab.
>
> The control head for the 857 is separated and mounted on the plastic bezel
> around the gear shift lever. The rig is mounted on the floor under the
> driver's seat.
>
> Underneath the truck, on the rocker panel just beneath the seatbelt anchor
> point, is a factory-made hole in the floor. This hole is closed with a
> removable rubber plug. I ran the radio's power lead through this rubber
> plug, along the frame, into the engine compartment where I attached the
> positive lead to the battery and the negative lead to chassis ground.
>
> I planned to run the antenna leads out through the same hole then run them
> along the frame into the sidewall of the bed to the rear of the truck where
> I will mount a VHF/UHF antenna in one rear stake hole and an ATAS-120 in the
> other rear stake hole, using the GeoTools mount:
> http://www.geotool.com/antmount.htm
>
> I took the truck in for service last week and the service advisor gave me a
> long lecture about keeping the coax away from the air bag and away from the
> seatbelt retractor. He told me the retractor has a small explosive charge
> in it that can be set off by radiation from coax. Ditto for the airbag.
>
> The route I planned for the coax takes it right next to the seatbelt
> retractor and I am now re-thinking my installation. I could route the coax
> from underneath the driver's seat directly to the back of the cab and drill
> a hole in the floorboard, centered on the cab at the back wall of the cab,
> and run the coax out of that hole. This would get a foot or more separation
> between the coax and the retractor.
>
> I plan to ground the hell out of this installation.

> -- The power lead is grounded to the frame in the engine compartment.
> -- I have a 10 gauge pigtail -- one end will be bolted under one of the
> bolts that attaches the seat frame to the floorboard and the other end will
> be bolted to the 857 chassis.
> -- The antenna mounts bolt directly onto the chassis; I will sand off the
> paint and use star washers to get good contacts at these mounting points.
>
> Also, I will use double-shielded RG-8X for the coax.
>
> I see a lot of trucks like mine (the B4000 is the same truck as the Ford
> Ranger) with CB installations -- I have never stopped anyone and asked but
> it seems to me the normal CB installation is nowhere near as good as mine
> and they don't seem to have problems. Of course, I'm running 100 watts and
> they are running only 5 (right???).
>
> Has anyone out there had experience with HF mobile installations in the
> Mazda or Ranger pickups?
>
> Thanks for your assistance.
>
>

808. Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:29:13 UTC
From: Eric <eric.ritchie@verizon.net>
Message-ID: <dD6Bf.4214$qG3.2011@trndny04>
Source record: 65070

This is a series of questions about AM broadcast antenna and lead-in problems I have, it is not a strictly "amateur radio" question, so I hope you forgive the intrusion but I thought this group to be the best for the question.
I have purchased a Russound ST2 dual tuner for medium wave (AM broadcast) and FM for my whole house audio system. I have hooked up a Radio Shack FM Stereo Antenna in the attic and it works well for FM. The AM antenna input is 300 ohm. Two loop antennas (about 5" diameter) are supplied but do not work well in the room I have the tuner as there is lots of noise and weak signal. I would like to mount the supplied loop antenna(s) in the attic. I am 18 miles from New York and only want to recieve local broadcasts (no DX). It is not practical for me to put up a 200 foot longwire. I have to make some decisions:
1. Can one antenna feed both tuners by being hooked up in parallell? Is there a signal loss?
2. Am I better off using 300 ohm flat TV type cable or should I use two 300/75 transformers (one at the reciever and one at the loop antenna) with RG-6 quad shield? I am wondering if the transformer loss is worth the possible noise reduction from the coax.
3. Should I be able to use 1 loop for the two tuners and the coax, is it best to split the 75 ohm coax and use independent 300 ohm transformers or to split the 300 ohm feed from one tuner to the other?
4. Is it possible to use the FM antenna for the AM and how would it be best to split that up? (I would have to feed two FM and two AM tuners but only two could be used at once).

Thanks,
Eric

809. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:44:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <JR6Bf.24125$PL5.5923@newssvr11.news.prodigy.com>
Source record: 65069

JIMMIE wrote:
> Thanks Cecil, I was concerned about spacing of the stub more than
> anything else. I guesstimated this should be about a foot.

The bottom 1/4WL is a quarter-wave matching stub, either open
or shorted. If it is open, you have a Zepp antenna, and they
used to use open-wire transmission line for that. One foot
spacing may be a little much. Rule of thumb - 1% of a wavelength
would be about eight inches on 20m.
--
73, Cecil http://www.qsl.net/w5dxp

810. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:53:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <NZ6Bf.24127$PL5.9816@newssvr11.news.prodigy.com>
Source record: 65071

Robert11 wrote:
> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver, is a loss of, e.g., 2.5 db "meaningful" ?

Modern receivers have such a wide dynamic range that 2.5 dB
of loss on a received signal is usually of no consequence
at HF frequencies. Some hams don't even worry about that
amount of signal loss on transmit, ~ half an S-unit.
--
73, Cecil http://www.qsl.net/w5dxp

811. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:55:52 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dr2ua8$fi4$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65072

"Owen Duffy" wrote
> One good pickup was the functions for predicting the low frequency
> resistance of shallow buried radials (which is relevant when radial
> wires are required to provide a level of power / lightning
protection.
> I created a graph to add to an existing web page from the functions
> for 3mm (bare) wires buried 0.1m, the graph is at
> http://www.vk1od.net/post/earth02a.gif . (For avoidance of doubt,
this
> graph does not predict the RF characteristics of the radials.)
==

Owen, I assume the curves in your graphs have been obtained by
treating the conductors as transmission lines. As far as I am aware
there's no other way of doing it. Except perhaps EZNEC
number-crunching mathematical modelling methods.

At VLF the inductance of the conductors and the capacitance due to
relatively high permittivity of the dielectic material (soil) can be
neglected.

This leaves only conductor resistance and conductance (or resistivity)
of the soil. It is then quite simple for single wires.

To predict performance at RF it is necessary to take inductance and
capacitance into account. What is unknown is the way in which soil
permittivity and resistivity change with frequency. But this hardly
matters as the uncertainty at 60 Hz is sufficient to swamp it.

I won't ask you what you did about calculating the effects of multiple
radial wires, and the interaction between individual wires, which
causes "The Law of Diminishing Returns" to be followed.

There is sufficient information in your graph to demonstrate that
Magician Marzipan's magic high number of 120 is never necessary for
amateur purposes.

Reg.

812. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 15:59:18 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dr2ugm$g2f$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65073

"Roy Lewallen" wrote -
> I disagree. Transmission lines have two conductors. Radials don't.
==========

Roy, try using your imagination!

Reg.

813. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:07:50 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehkhyv3wp07005@cnews.newsguy.com>
Source record: 65074
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Amos Keag wrote:

> Coax should have no rf current on the outside of the cable assuming a
> good ground at the antenna.
~~~~~~

Nonsense.

Current on the outside of the coax is caused by imbalance in the
antenna. A good ground will not get rid of it, in fact it may well be
the cause if the ground has a different impedance than the antenna.

Bill, W6WRT
~~~~~~

814. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:12:22 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehki2y42jnz006@cnews.newsguy.com>
Source record: 65075

Bob Miller wrote:

> (One of my local computer stores has Beldon
> RG-58U at 22 cents a foot.)
~~~~~~

If you're going to search the internet, you have to spell it right:

Belden.

Bill, W6WRT
~~~~~~

815. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:15:51 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehki60470k7007@cnews.newsguy.com>
Source record: 64976

Robert11 wrote:

> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver, is a loss of, e.g., 2.5 db
> "meaningful" ?
~~~~~~

The answer depends on the noise figure of your receiver. Most modern receivers have very low internal noise and will work fine under the conditions you describe. Older receivers, especially tube sets, generate so much internal noise that it may be stronger than the signal you are trying to receive and the 2.5 dB loss will render the signal inaudible.

In other words, it depends. :-)

Bill, W6WRT
~~~~~~

816. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:40:29 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <9l1at1hp29i2n722orfnsjdqbnaegnq4ac@4ax.com>
Source record: 64978

On Mon, 23 Jan 2006 14:36:51 GMT, "Dale Parfitt"
<par@parelectronics.com> wrote:

>> Plan is to build a J antenna for 20 meters using 1 inch EMT conduit.
>> Antenna will be supported at the bottom by a 4x4 post in the ground and
>> at the 30+ foot level with a fiberglass bracket bolted to the eve of
>> the house. The upper most section will be a fiberglass 1/2 wl antenna
>> thta used to be used for CB. I am looking for a program that will allow
>> me to calculate deminsions for a project like this. Feedline will be 50
>> ohm coax.
>>

Yes, I may I suggest you take a look at this one. You'll get two bands
instead of one.

http://k6mhe.com/files/DualBandVert.pdf

Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

817. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:40:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <hG7Bf.18778$dW3.11892@newssvr21.news.prodigy.com>
Source record: 64977

Reg Edwards wrote:

> "Roy Lewallen" wrote -
>>I disagree. Transmission lines have two conductors. Radials don't.
>
> Roy, try using your imagination!

My "Electronics Equations Handbook" gives the specifications
for a "SINCLE-WIRE ABOVE-GROUND TRANSMISSION LINE" including
Z0, C, L, and resistivity adjusted for frequency.
--
73, Cecil http://www.qsl.net/w5dxp

818. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 16:47:54 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <3t1at1t72m7im2l14ifrjbtenql4c03s5e@4ax.com>
Source record: 64979

On Mon, 23 Jan 2006 15:59:18 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>
>"Roy Lewallen" wrote -
>> I disagree. Transmission lines have two conductors. Radials don't.
>=======================================
>
>Roy, try using your imagination!
>----

Yes, by all means Roy. I suggest you start out with a about ï¿½ LB of
Mendocino Home Growen or Humbolt Gold. (That's wacky-tabacky for those
of you who are not familiar with the termalogy). Then you'll find all
things can be imagined. <G>

Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

819. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 18:11:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <A%8Bf.13839$H71.13663@newssvr13.news.prodigy.com>
Source record: 64980

nm5k@wt.net wrote:
> Conductive mast?
>
> Sure. Grounded at the base too.

I am somewhat surprised at the effect of a grounded
conductive mast upon the feedpoint impedance predicted
by EZNEC. On 40m, with the radials attached to the mast,
the feedpoint impedance is 7.8 - j255. With the radials
not attached to the mast the feedpoint impedance is
81 - j219. With no radials and using the mast as a
counterpoise, the feedpoint impedance is 2044 + j1461.
--
73, Cecil http://www.qsl.net/w5dxp

820. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 18:25:26 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <7o7at11v0giqof4nauenk0pcml921m3jqt@4ax.com>
Source record: 64981

On Mon, 23 Jan 2006 07:29:11 GMT, Owen Duffy <owen@no.where> wrote:

>I created a graph to add to an existing web page from the functions
>for 3mm (bare) wires buried 0.1m

Hi Owen,

Does this discount the proximity of the radials nearest the center?
That is, the graph is not simply a summation of the individual
lengths, is it?

What would nominal be (in other words, actual) for this specific
description above?

73's
Richard Clark, KB7QHC

821. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 18:32:25 UTC
From: Chuck Olson <chuckolson01@REMOVETHIScomcast.net>
Message-ID: <26Kdnftxv6kXvEjenZ2dnUVZ_tWdnZ2d@comcast.com>
Source record: 64982

"Eric" <eric.ritchie@verizon.net> wrote in message
news:dD6Bf.4214$qG3.2011@trndny04...
> This is a series of questions about AM broadcast antenna and lead-in
> problems I have, it is not a strictly "amateur radio" question, so I hope
> you forgive the intrusion but I thought this group to be the best for the
> question.
> I have purchased a Russound ST2 dual tuner for medium wave (AM broadcast)
> and FM for my whole house audio system. I have hooked up a Radio Shack FM
> Stereo Antenna in the attic and it works well for FM. The AM antenna input
> is 300 ohm. Two loop antennas (about 5" diameter) are supplied but do not
> work well in the room I have the tuner as there is lots of noise and weak
> signal. I would like to mount the supplied loop antenna(s) in the attic.
I
> am 18 miles from New York and only want to recieve local broadcasts (no
DX).
> It is not practical for me to put up a 200 foot longwire. I have to make
> some decisions:
> 1. Can one antenna feed both tuners by being hooked up in parallell? Is
> there a signal loss?
> 2. Am I better off using 300 ohm flat TV type cable or should I use two
> 300/75 transformers (one at the reciever and one at the loop antenna) with
> RG-6 quad shield? I am wondering if the transformer loss is worth the
> possible noise reduction from the coax.
> 3. Should I be able to use 1 loop for the two tuners and the coax, is it
> best to split the 75 ohm coax and use independent 300 ohm transformers or
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> split the 300 ohm feed from one tuner to the other?
> 4. Is it possible to use the FM antenna for the AM and how would it be
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> to split that up? (I would have to feed two FM and two AM tuners but only
> two could be used at once).
>
> Thanks,
> Eric
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>
Most AM radios use a ferrite loopstick antenna. But that is part of the
input high-Q tuned circuit. Just connecting a loopstick to the 300 ohm input
of your receiver would probably not work well, but if you could put a
"source-follower" (a special transistor circuit that has a very high input
impedance and low output impedance) between a remote loopstick tuned circuit
and your set, and somehow using a voltage-variable capacitor to remotely
tune it, the result could be quite good.

A loopstick is very directional, and if pointed the wrong way, will partially null out the signal you want. However the null is directionally fairly sharp, so most loopstick antennas turn out to be adequate. In any event, AM broadcast in any but a high signal strength area with the equipment you describe is going to be "iffy", and at worst, a bother having to re-tune a remote antenna each time you change stations.

What's your experience with regular AM transistor radios around the house? Do they work okay? If they do, it suggests the signal strengths on the stations you like are probably high enough, but your choice of a radio that doesn't have a tuned loopstick antenna is somewhat ill advised. If you can take it back or sell it - - and get a better radio that has enough front end gain to use the 5" diameter loops or that has a large ferrite rod antenna on the outside that you can see - - that might be best.

Always listen to a radio before buying it, and make sure you can take it back if it doesn't work out in your system.

Good luck,

Chuck

822. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 18:45:30 UTC
From: Eric <eric.ritchie@verizon.net>
Message-ID: <ev9Bf.1021$0n4.381@trndny05>
Source record: 64983

Chuck,
Thank you for your detailed reply.
I have to use this tuner as it is part of a whole house audio system that is remote controlled. As such, I can't simply swap it out with another set. All of the stations I need are in the same place, New York City, so I won't need to reorient the loop once it is set. All I am looking to do is place the same antenna in the attic, and I need some advice on the connections.
Thanks,
Eric

"Chuck Olson" <chuckolson01@REMOVETHIScomcast.net> wrote in message news:26KdnftxvkXvEjenZ2dnUVZ_tWdnZ2d@comcast.com...
>
> "Eric" <eric.ritchie@verizon.net> wrote in message
> news:dD6Bf.4214$qG3.2011@trndny04...
> > This is a series of questions about AM broadcast antenna and lead-in
> > problems I have, it is not a strictly "amateur radio" question, so I hope
> > you forgive the intrusion but I thought this group to be the best for the
> > question.
> > I have purchased a Russound ST2 dual tuner for medium wave (AM broadcast)
> > and FM for my whole house audio system. I have hooked up a Radio Shack FM
> > Stereo Antenna in the attic and it works well for FM. The AM antenna input
> > is 300 ohm. Two loop antennas (about 5" diameter) are supplied but do not
> > work well in the room I have the tuner as there is lots of noise and weak
> > signal. I would like to mount the supplied loop antenna(s) in the attic.
> I
> > am 18 miles from New York and only want to recieve local broadcasts (no
> DX).
> > It is not practical for me to put up a 200 foot longwire. I have to make
> > some decisions:
> > 1. Can one antenna feed both tuners by being hooked up in parallell? Is
> > there a signal loss?
> > 2. Am I better off using 300 ohm flat TV type cable or should I use two
> > 300/75 transformers (one at the reciever and one at the loop antenna) with
> > RG-6 quad shield? I am wondering if the transformer loss is worth the

> > possible noise reduction from the coax.
> > 3. Should I be able to use 1 loop for the two tuners and the coax, is it
> > best to split the 75 ohm coax and use independent 300 ohm transformers
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> > split the 300 ohm feed from one tuner to the other?
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> > two could be used at once).
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> > Thanks,
> > Eric
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> Most AM radios use a ferrite loopstick antenna. But that is part of the
> input high-Q tuned circuit. Just connecting a loopstick to the 300 ohm
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> of your receiver would probably not work well, but if you could put a
> "source-follower" (a special transistor circuit that has a very high input
> impedance and low output impedance) between a remote loopstick tuned
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> and your set, and somehow using a voltage-variable capacitor to remotely
> tune it, the result could be quite good.
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> A loopstick is very directional, and if pointed the wrong way, will
> partially null out the signal you want. However the null is directionally
> fairly sharp, so most loopstick antennas turn out to be adequate. In any
> event, AM broadcast in any but a high signal strength area with the
> equipment you describe is going to be "iffy", and at worst, a bother
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> What's your experience with regular AM transistor radios around the house?
> Do they work okay? If they do, it suggests the signal strengths on the
> stations you like are probably high enough, but your choice of a radio
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> doesn't have a tuned loopstick antenna is somewhat ill advised. If you can
> take it back or sell it - - and get a better radio that has enough front
end
> gain to use the 5" diameter loops or that has a large ferrite rod antenna
on
> the outside that you can see - - that might be best.
>
> Always listen to a radio before buying it, and make sure you can take it
> back if it doesn't work out in your system.
>
> Good luck,
>

> Chuck
>
>

823. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 18:55:55 UTC
From: nm5k@wt.net
Message-ID: <1138042555.290651.187890@g49g2000cwa.googlegroups.com>
Source record: 64984

Sounds like your dipole was not a very good dipole...

A dipole is a dipole. You can't go by what eznec says.
My modeling didn't match my real world either unless I
cranked the ground quality up in the modeling program.
My GP was *always* about 4 s units louder than the
dipole to VK. Every time I compared. I had a regular
sked over there 3 times a week. The GP was
always 2 S units louder to the west coast than the
dipole. Every time I checked. The dipole was at
36 ft. The base of the GP was at 36 ft. There are
factors in comparing the two antennas in the real
world, that I don't think modeling takes full account of.
Also, my ground is better than yours too. My GP was
higher than your last one by nearly double. Don't
confuse what you saw with your last one, with what I
saw on mine. Mine was a good bit more efficient as
far as radial number vs height in wavelength vs the one
you ran last time.
Of course, S meter readings mean zip as far as actual
db improvement, but there is no doubt my GP smoked
my dipole on long paths. Day and night...And the difference
was reciprical xmit/rcve in almost all cases.

>Suit yourself, but any serious DXer will tell you there are times when
>one dB of S/N ratio would make the difference between QSO and no QSO

Sure, but the actual signal level increase on a long path is
almost always stronger than any increase in noise. I never
once felt the need to use my dipole for receive in place of the
GP. Would be stepping backwards. Now, on the low bands
like 80/160, a beverage, etc, might be better for rcve, but I don't
use those on 40m.
MK

824. FS Microwave antennas.. Video gear..

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:15:15 UTC
From: Mike Kulyk <mkulyk@optonline.net>
Message-ID: <cX9Bf.78$sj7.20@fe08.lga>
Source record: 64985

I have 2 units of Satellite TV Antennas

Both were used and removed from service.

One is a 22 inch Dish 500 antenna with 2 LNB's on it. LNB's look good.. cover around them is cracked. Antenna has MAST mount. Complete antenna is in good looking shape, $50

Second is 19 or 20 inch Direct TV antenna,, NO LNB.. mount is there and a mount for a mast.. $25

I have (2) 9 inch Panasonic WV 5370A monitors, These are 9 inch professional grade (so I am being told.) Video monitors. THEY are in good looking shape. WITH very very heavy brackets to hang these monitors up. I did plug them in. AND I get NO power lite. I don't know if I have to feed them video to have them come on. SO I am selling them AS is. THEY could be perfect. I am not sure. If not this is good equipment so its worth repairing. $50 ea

Scientific Atlanta Cable channel 18 video Modulator.. Works well.

$100.. (I have a picture of this)

NO pictures of the other stuff.

SHIPPING not included ,,

825. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:21:24 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <nu9at1ppjl6dgh02bbjpr9di3hmip1cefl@4ax.com>
Source record: 64986

On Mon, 23 Jan 2006 15:29:13 GMT, "Eric" <eric.ritchie@verizon.net>
wrote:

>1. Can one antenna feed both tuners by being hooked up in parallell? Is
>there a signal loss?

Hi Eric,

Yes/Yes. Does the loss matter at a distance of 18 miles? Probably
not. However, this question is rather hazy given the ones that follow
seem to ask the same thing again.

>2. Am I better off using 300 ohm flat TV type cable or should I use two
>300/75 transformers (one at the reciever and one at the loop antenna) with
>RG-6 quad shield? I am wondering if the transformer loss is worth the
>possible noise reduction from the coax.

Again, the presumption of loss is exaggerated. Your problem, as you
describe it, is noise. However, the transformers are probably more
suited for FM than AM. On further consideration, that may not matter
either as it is the shielding action of the coax that may in fact
offer more payback in noise reduction for the AM operation than any
issue over the expected transformer loss.

To take this one step further, at the AM antenna end of the coax,
simply coil the coax around an empty liter coke bottle with a dozen or
so turns. This is more to help isolate from noise than anything else.

>3. Should I be able to use 1 loop for the two tuners and the coax, is it
>best to split the 75 ohm coax and use independent 300 ohm transformers or to
>split the 300 ohm feed from one tuner to the other?

Another hazy question. Run separate lines for AM and FM. You can
combine them, and split them out at each end so that there is only one
long run of coax (which is commendable). However, as you are
approaching this with a known problem, it is in your best interest to
keep the bands/antennas/lines separate.

>4. Is it possible to use the FM antenna for the AM and how would it be best
>to split that up? (I would have to feed two FM and two AM tuners but only
>two could be used at once).

Another hazy question. Through all this haze, it seems you are quite
set upon combining things. With such a wide separation in frequency,
you would tend to end up with a single solution that poorly serves two
purposes. It raises the complexity factor, and any problem compounds
that further.

This simply means that, yes, you can; but it would not seem likely you are actually doing yourself a favor.

73's
Richard Clark, KB7QHC

826. Rotor suggestions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:31:00 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <dceba$43d52eef$18d6b488$15401@KNOLOGY.NET>
Source record: 64987

I'm going to buy a rotor for my flag antenna. I have a rotor now but it is
one of the old TV antenna rotors with a control unit that goes klunk, klunk,
klunk,
as the antenna turns. I'm hope newer rotors have quiet control units.
It doesn't have to be heavy duty the TV antenna rotor has worked fine.
What are some rotor suggestions?

P.S. Has anyone built a quiet control unit for the old Alliance U-110 rotor?
My rotor works fine, but the klunking at midnight bothers my wife!

Mike

827. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:37:34 UTC
From: Eric <eric.ritchie@verizon.net>
Message-ID: <2gaBf.1024$0n4.600@trndny05>
Source record: 64988

Richard,
Thanks for your detailed answer.
I am not really set upon combining. I am glad to run another wire. I gather from your response I am better off with the coax and two transformer setup than with using 300 ohm twin wire for the strictly AM radio purpose.
Thanks,
Eric

"Richard Clark" <kb7qhc@comcast.net> wrote in message news:nu9at1ppjl6dgh02bbjpr9di3hmip1cefl@4ax.com...
> On Mon, 23 Jan 2006 15:29:13 GMT, "Eric" <eric.ritchie@verizon.net>
> wrote:
>
> >1. Can one antenna feed both tuners by being hooked up in parallell? Is
> >there a signal loss?
>
> Hi Eric,
>
> Yes/Yes. Does the loss matter at a distance of 18 miles? Probably
> not. However, this question is rather hazy given the ones that follow
> seem to ask the same thing again.
>
> >2. Am I better off using 300 ohm flat TV type cable or should I use two
> >300/75 transformers (one at the reciever and one at the loop antenna) with
> >RG-6 quad shield? I am wondering if the transformer loss is worth the
> >possible noise reduction from the coax.
>
> Again, the presumption of loss is exaggerated. Your problem, as you
> describe it, is noise. However, the transformers are probably more
> suited for FM than AM. On further consideration, that may not matter
> either as it is the shielding action of the coax that may in fact
> offer more payback in noise reduction for the AM operation than any
> issue over the expected transformer loss.
>
> To take this one step further, at the AM antenna end of the coax,
> simply coil the coax around an empty liter coke bottle with a dozen or
> so turns. This is more to help isolate from noise than anything else.
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> >3. Should I be able to use 1 loop for the two tuners and the coax, is it
> >best to split the 75 ohm coax and use independent 300 ohm transformers or to
> >split the 300 ohm feed from one tuner to the other?
>

> Another hazy question. Run separate lines for AM and FM. You can
> combine them, and split them out at each end so that there is only one
> long run of coax (which is commendable). However, as you are
> approaching this with a known problem, it is in your best interest to
> keep the bands/antennas/lines separate.
>
> >4. Is it possible to use the FM antenna for the AM and how would it be
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> >to split that up? (I would have to feed two FM and two AM tuners but only
> >two could be used at once).
>
> Another hazy question. Through all this haze, it seems you are quite
> set upon combining things. With such a wide separation in frequency,
> you would tend to end up with a single solution that poorly serves two
> purposes. It raises the complexity factor, and any problem compounds
> that further.
>
> This simply means that, yes, you can; but it would not seem likely you
> are actually doing yourself a favor.
>
> 73's
> Richard Clark, KB7QHC

828. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:52:49 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11tad0kamemosfa@corp.supernews.com>
Source record: 64989

At 30 MHz, you're right at the border between HF and VHF. Below about 30 MHz, atmospheric noise dominates, and reducing the coax loss will make no difference at all in your ability to hear signals. Above about 30 MHz, receiver noise dominates, and reducing the coax loss 2.5 dB will make an improvement, the amount depending on the relationship between the receiver noise figure and the atmospheric noise. But the boundary is fuzzy, so right at 30 MHz it's probably a toss.

But here's a very simple test you can do which will give you a definitive answer: Tune the receiver to a frequency where there's no signal, and disable the squelch if it has one so you can hear the noise. Then disconnect the antenna from the receiver. (With some receivers you might have to replace the antenna with a dummy load rather than just disconnecting it, but that isn't usually necessary.) If the noise level drops when you disconnect the antenna, reducing coax loss or otherwise improving antenna efficiency won't make any difference in your ability to hear signals. If the noise doesn't drop, then efficiency improvements will improve your ability to hear signals.

Roy Lewallen, W7EL

Robert11 wrote:
> Hello:
>
> Don't have a good feeling for the significance of this:
>
> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver,
> is a loss of, e.g., 2.5 db "meaningful" ?
>
> Specifics would be 100 feet of RG 58 at 30 MHz
>
> Or is it worth the extra $ to go to a less lossy coax (application would
> always be for receive only)
>
> BTW: R/S Coax a decent quality ?
>
> Thanks,
> B.
>
>

829. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:53:38 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <3rofa3-ucl.ln1@p400bob.personal.cox.net>
Source record: 64991

Hi Eric

I certainly welcome your question, amateur radio related or not!

Most effort in amateur radio circles on MF is associated with matching a transmitter and antenna. The next most important step is to increase the desired signal to noise ratio into the receiver (by using antenna directivity, type and orientation etc) Since atmospheric noise is far stronger than that contributed by the receiver device, actual signal loss over the feedline length isnt normally an issue. The actual signal level isnt important provided it is greater than the noise.

1. Under perfect conditions assuming known source, load and feedline impedences, yes the power going to each receiver will be cut by half (3dB). Purist may argue that a simple "in parallel" configuration is a bad thing. For AM MF I dont think you'll even notice it...

2. I doubt the balun to RG6 would be useful. I'd also suspect they will be hard to find given the operating frequency. (Cheapo TV baluns probably wont work well much below 40MHz) One of the problems you will encounter coax or ribbon is that if the antenna isnt symmetrical you will receive noise from along the length of the feedline itself. Not a good thing if it runs past a fluro or light dimmer (or wiring).

I also doubt that the input Z at the antenna input terminal truly is 300 ohms. I mean it works over a 3:1 frequency range as well..

One of the downsides of using ribbon is possible interactions with nearby metalwork. I'd suggest in your case that it wont be an issue. In fact using the supplied loop antenna may be no better than using a random length of wire (dipole arrangement) attached to the ends of the ribbon in the attic. The line loss is not so much an issue than the signal received at the antenna itself.

I'd suggest you use the random wire approach with the ribbon in parallel to both tuners and see what the signal is like. If it is still noisy play with the antenna polarity (vert vs horiz or at least diagonal) I suggest that trying to match impedence and getting the same signal power in each line/RX isnt important at all. If one wanted a perfect configuration (ie for transmitting) the difficulty is major given the frequency range the thing has to work over.

Tell us how you fair

Cheers Bob W5/VK2YQA East Texas

Eric wrote:
> This is a series of questions about AM broadcast antenna and lead-in
> problems I have, it is not a strictly "amateur radio" question, so I hope
> you forgive the intrusion but I thought this group to be the best for the
> question.

830. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 19:59:29 UTC
From: Chuck Olson <chuckolson01@REMOVETHIScomcast.net>
Message-ID: <PvSdnSMKlfLOqEjenZ2dnUVZ_tOdnZ2d@comcast.com>
Source record: 64990

"Eric" <eric.ritchie@verizon.net> wrote in message
news:ev9Bf.1021$0n4.381@trndny05...
> Chuck,
> Thank you for your detailed reply.
> I have to use this tuner as it is part of a whole house audio system that
is
> remote controlled. As such, I can't simply swap it out with another set.
> All of the stations I need are in the same place, New York City, so I
won't
> need to reorient the loop once it is set. All I am looking to do is place
> the same antenna in the attic, and I need some advice on the connections.
> Thanks,
> Eric
>
> "Chuck Olson" <chuckolson01@REMOVETHIScomcast.net> wrote in message
> news:26KdnftxvkXvEjenZ2dnUVZ_tWdnZ2d@comcast.com...
> >
> > "Eric" <eric.ritchie@verizon.net> wrote in message
> > news:dD6Bf.4214$qG3.2011@trndny04...
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> > > you forgive the intrusion but I thought this group to be the best for
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> > > question.
> > > I have purchased a Russound ST2 dual tuner for medium wave (AM
> broadcast)
> > > and FM for my whole house audio system. I have hooked up a Radio Shack
> FM
> > > Stereo Antenna in the attic and it works well for FM. The AM antenna
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> > > is 300 ohm. Two loop antennas (about 5" diameter) are supplied but do
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> > > signal. I would like to mount the supplied loop antenna(s) in the
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> > > two could be used at once).
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> > > Thanks,
> > > Eric
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> on
> > the outside that you can see - - that might be best.
> >
> > Always listen to a radio before buying it, and make sure you can take it
> > back if it doesn't work out in your system.
> >
> > Good luck,
> >
> > Chuck
> >
> >
>
>

Hi, Eric,

I was just looking at the specs of the Russound ST2, and it doesn't look too good for AM reception. 55dBu sensitivity is really, really poor - - that's 562 microvolts to reach 20dB signal/noise ratio - - no wonder the loops don't work well on stations 18 miles away. Typical AM broadcast sensitivity of Ham Radio gear runs around 13 microvolts. I think you can forget about AM broadcast, especially if you have one with XM radio, since XM will most likely occupy more of your listening time. It looks to me like the manufacturer is just not serious about providing any decent AM reception. The 3 KHz response on AM is also not very inspiring - - maybe okay for news or talk radio, but not much more. If anything can improve the outlook on AM reception with this radio, here's a website that may help: http://www.mindspring.com/~loop_antenna/

Good luck,

Chuck

831. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:14:26 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <oedat1poonla638ganit2nucfn0paj541t@4ax.com>
Source record: 64992

On Mon, 23 Jan 2006 19:37:34 GMT, "Eric" <eric.ritchie@verizon.net>
wrote:

>Richard,
>Thanks for your detailed answer.
>I am not really set upon combining. I am glad to run another wire. I gather
>from your response I am better off with the coax and two transformer setup
>than with using 300 ohm twin wire for the strictly AM radio purpose.
>Thanks,

Hi Eric,

Why you would use 300 Ohm twin wire for AM antennas is odd, but not prohibited. However, it does demand all the attention to keeping the line balanced (like I said, move away from coax, and problems become compounded). If there are 300 Ohm issues both at the antenna and at the radio, you must preserve them through transformers if you do migrate to coax.

Balanced goes by many requirements, none of which can be ignored. An unbalanced condition is a tacit allowance for the intrusion of noise. As you describe a problem with noise - well, you see where this leads, an absolute exercise in driving out the imbalance.

Where does it occur? How do you find it? The problems are stacking up already. It happens at the antenna itself when it is mounted near conductive materials. This observation only leads to more questions, what might be conductive that is nearby, and how near is nearby? The same problem exists with coax feeds, but you can solve those easier with the coiled lead at the end (you probably could do the same with twin lead - and winding either lead 4 or 5 times through a ferrite core could be equivalent fixes). However, this is only at the antenna end, and that may not be the source of the imbalance. For twin leads, it could be as easily that the lead traces up against metal ducting, or along house wiring.

If you are scrupulous about these kind of details, twin lead may indeed work fine.

Another method of tackling the problem is to carry a small transistor radio around the house, and try to locate the noise itself. Killing the source is a one pound cure for a ten pound problem. If the noise comes from outside the house, then you have antenna issues, and all the wishing in the world in trying to avoid a different antenna will come to naught.

73's
Richard Clark, KB7QHC

832. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:27:47 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <7%aBf.132086$km.55846@edtnps89>
Source record: 64993

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43D4686E.6000408@comcast.net...
> Frank, this is consistent with what I am observing. The claim is for a
> given frequency when a 0j load (in the range of 10 to 40 Ohms) and an
> unknown load (assumed to be in the range of 10 to 40 Ohms) show the same
> phase shift then the unknown is 0j also. It is not necessary that the
> loads be the same value, only within the range. (I will have to experiment
> with loads over 60.)
>
> So far nothing has surfaced to contradict this.
>
> Thanks - Dan

Dan, essentially your assumptions are correct providing you have no error terms such as poor directivity.

Frank

833. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:43:06 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jreat1l8vpodhlftr3rfso0o04cbv50rs4@4ax.com>
Source record: 64994

On Mon, 23 Jan 2006 15:55:52 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>
>"Owen Duffy" wrote
>> One good pickup was the functions for predicting the low frequency
>> resistance of shallow buried radials (which is relevant when radial
>> wires are required to provide a level of power / lightning
>protection.
>> I created a graph to add to an existing web page from the functions
>> for 3mm (bare) wires buried 0.1m, the graph is at
>> http://www.vk1od.net/post/earth02a.gif . (For avoidance of doubt,
>this
>> graph does not predict the RF characteristics of the radials.)
>=======================================
>
>Owen, I assume the curves in your graphs have been obtained by
>treating the conductors as transmission lines. As far as I am aware
>there's no other way of doing it. Except perhaps EZNEC
>number-crunching mathematical modelling methods.

Let me quote again:
< (For avoidance of doubt, this
> graph does not predict the RF characteristics of the radials.)

The graph uses the functions in the paper identified by Richard (
http://www.usda.gov/rus/telecom/publications/pdf_files/1751f802.pdf
). Looking at the functions, I think they just calculates the DC /
low frequency resistance of the electrodes immersed in the soil which
is a high resistivity medium, by modelling the geometry of the
equipotential "layers" around the electrode as is done with a single
straight earth electrode. The functions for 6+ radials (or all of
them) may just be a fit to experimental data.

>
>At VLF the inductance of the conductors and the capacitance due to
>relatively high permittivity of the dielectic material (soil) can be
>neglected.

I think these functions are for the resistance at power frequencies
(ELF?) and are not applicable to RF. Nevertheless, most lightning
protection texts seem to deal with the earth system as a DC resistance
with some lumped series inductance to model the above ground
connection, though clearly, lightning spikes are a double exponential
with components up to VHF depending on the way in which the network
modifies the waveshape.

>
>This leaves only conductor resistance and conductance (or resistivity)
>of the soil. It is then quite simple for single wires.
>
>To predict performance at RF it is necessary to take inductance and
>capacitance into account. What is unknown is the way in which soil
>permittivity and resistivity change with frequency. But this hardly
>matters as the uncertainty at 60 Hz is sufficient to swamp it.
>
>I won't ask you what you did about calculating the effects of multiple
>radial wires, and the interaction between individual wires, which
>causes "The Law of Diminishing Returns" to be followed.

See above.

>
>There is sufficient information in your graph to demonstrate that
>Magician Marzipan's magic high number of 120 is never necessary for
>amateur purposes.

I am guessing that the magic 120 was from BLE's paper, and it was
talking about performance at 1MHz or so, so it is RF performance that
is being considered.

The graphs I produced certainly suggest that at DC / 50Hz / 60Hz, that
there is insignificant benefit in installing more than 6 or 8 radial
wires. The reasons will be the same as why installing two vertical
electrodes close together achieves almost no improvement.

Owen
--

834. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:47:01 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9hbBf.2050$2O6.971@newssvr12.news.prodigy.com>
Source record: 64995

nm5k@wt.net wrote:
> The dipole was at 36 ft. The base of the GP was at 36 ft.

Well, there's the problem. You stopped your dipole where
your vertical started so any comparisons are bogus. Your
dipole was an NVIS antenna. :-) It's not a fair comparison
since the vertical was given a 2x height advantage. (That's
like putting my three foot six inch grandson up against
Shaquelle O'Neal in basketball. :-) Put the dipole at 70
feet, like the vertical was, and see what happens.

The top of my vertical was at 53 ft. and my dipole was
one of its upper guy wires at about 50 feet so the two
heights were essentially opposite yours.

Which brings up another question. If the top of a vertical
is at a certain height, what height of dipole would be a fair
comparison? It is certainly unfair to compare feedpoints
at the same height, like you did. It may also be slightly
unfair to compare them at the same maximum heights, like I did.
It seems a fair comparison might be made when half the vertical
is lower than the dipole and half is higher than the dipole,
i.e. the height of the dipole is at the midpoint of the
monopole?
--
73, Cecil http://www.qsl.net/w5dxp

835. Re: Rotor suggestions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:49:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AjbBf.2051$2O6.2007@newssvr12.news.prodigy.com>
Source record: 64996

amdx wrote:
> P.S. Has anyone built a quiet control unit for the old Alliance U-110 rotor?
> My rotor works fine, but the klunking at midnight bothers my wife!

I've been looking for a new wife not bothered by ham radio
for about 20 years now. :-)
--
73, Cecil http://www.qsl.net/w5dxp

836. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 20:54:19 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <msfat1hppn8h46sbusvs9b18fmnu67qa5n@4ax.com>
Source record: 64997

On Mon, 23 Jan 2006 10:25:26 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Mon, 23 Jan 2006 07:29:11 GMT, Owen Duffy <owen@no.where> wrote:
>
>>I created a graph to add to an existing web page from the functions
>>for 3mm (bare) wires buried 0.1m
>
>Hi Owen,
>
>Does this discount the proximity of the radials nearest the center?
>That is, the graph is not simply a summation of the individual
>lengths, is it?

Richard,

See my response to Reg.

The functions are from the reference paper you identified. I don't
recall that they explained the derivation of the functions, and they
may even be fits to experimental data. They do not appear to do
something as crude as summing the individual lengths.

>
>What would nominal be (in other words, actual) for this specific
>description above?

Did you mean "normalised"? You need to multiply the %/m value from the
Y axis by the actual soil resistivity in ohm-metres to get the
resistance of the electrode. For example, if you look the chart up for
3 radials of 5m length, you get 15%, which is multiplied by soil
resistivity (say 50 ohm-metres at a location) to get expected
electrode system "DC/AC" resistance of 7.5 ohms. (The graph is part of
a larger article which explains my "normalisation".)

Interestingly, I note the ref doc recommends galvanised electrodes. I
have been conducting an experiment here where I have recorded the
resistance of several driven earth electrodes over some years, and a
galvanised electrode of 25mm OD performs much worse than a copper clad
electrode of 13mm OD driven just 300mm away from it (both 2.4m long).
(The galvanised electrode is not electrically bonded to the earth
system for reasons of galvanic corrosion).

Owen
--

837. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 21:42:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <sbjat15kahu2270pldbqolgjop8rkdpt2e@4ax.com>
Source record: 64998

On Mon, 23 Jan 2006 20:54:19 GMT, Owen Duffy <owen@no.where> wrote:

>Interestingly, I note the ref doc recommends galvanised electrodes. I
>have been conducting an experiment here where I have recorded the
>resistance of several driven earth electrodes over some years, and a
>galvanised electrode of 25mm OD performs much worse than a copper clad
>electrode of 13mm OD driven just 300mm away from it (both 2.4m long).
>(The galvanised electrode is not electrically bonded to the earth
>system for reasons of galvanic corrosion).

Hi Owen,

What method did you use to measure the resistance?

73's
Richard Clark, KB7QHC

838. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 21:51:18 UTC
From: mcalhoun@ksu.edu
Message-ID: <dr3j4m$8nf@unix1.cc.ksu.edu>
Source record: 64999

>>>I disagree. Transmission lines have two conductors. Radials don't.
>> Roy, try using your imagination!
>My "Electronics Equations Handbook" gives the specifications
>for a "SINCLE-WIRE ABOVE-GROUND TRANSMISSION LINE" including
>Z0, C, L, and resistivity adjusted for frequency.

Don't forget the single-conductor transmission line invented by Goubau
and named "G-Line" in his honor. Quoting from page 164 of my 1972 copy
of "The Radio Amateur's VHF Manual":

"The basic idea is that a single conductor can be an almost loseless
transmisison line at untra-high frequencies, if a suitable launching
device is used. A similar launcher is placed at the other end.
Basically the launcher is a cone-shaped device which is a flared
extension of the coaxial feedline...."

--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

839. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 23:09:21 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dcoat1ttqpeebk3ml91olalbivgl6btf5j@4ax.com>
Source record: 65000

On Mon, 23 Jan 2006 13:42:41 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Mon, 23 Jan 2006 20:54:19 GMT, Owen Duffy <owen@no.where> wrote:
>
>>Interestingly, I note the ref doc recommends galvanised electrodes. I
>>have been conducting an experiment here where I have recorded the
>>resistance of several driven earth electrodes over some years, and a
>>galvanised electrode of 25mm OD performs much worse than a copper clad
>>electrode of 13mm OD driven just 300mm away from it (both 2.4m long).
>>(The galvanised electrode is not electrically bonded to the earth
>>system for reasons of galvanic corrosion).
>
>
>Hi Owen,
>
>What method did you use to measure the resistance?

I used a Kyoritsu instrument designed for the purpose. It uses the
three wire fall of potential method, and makes its measurements using
an AC waveform of about 800Hz.

Owen
--

840. question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-23 23:37:36 UTC
From: an old friend <kb9rqz@yahoo.com>
Message-ID: <1138059456.579317.228830@o13g2000cwo.googlegroups.com>
Source record: 65001

having lost the support on my 6m beam and haing a turner able to tune a random wire I have decided totry it

since i don't know I will like it id rather avoid cutting this nice piece of wire

thinking about unwiding some wire from a 1/2 mile spool anythoungts on howmuch and what happens if I don't cut it off the spool(just unwind 10ft fifty or whatever leaving one large inducer on the end of the "antenna

841. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 00:01:28 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <f-CdncUKkezf80jeRVn-tg@comcast.com>
Source record: 65002
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Amos Keag" <A.K01@comcast.net> wrote in message
news:66idnRrSFeXkbUneRVn-rQ@comcast.com...
>I use the through hole in the floor of my Ranger [Ford] as you describe.

Thanks -- what year is your Ranger? What bands and power are you running?
Where is your antenna mounted? Ever had any malfunctions caused by RF?

>
> Coax should have no rf current on the outside of the cable assuming a good
> ground at the antenna.
>
> Joe S. wrote:
>> This question does not fit perfectly into any rec.radio.amateur newsgroup
>> so I'll cross-post it to three groups and hope someone can help me.
>>
>> The question involves the dangers of RF energy from HF, VHF, and UHF rigs
>> around automobile electronics.
>>
>> I am installing a Yaesu FT-857D in a 1997 Mazda B4000 truck -- 4.0L V6,
>> 4WD, 5-speed, with extended cab.
>>
>> The control head for the 857 is separated and mounted on the plastic
>> bezel around the gear shift lever. The rig is mounted on the floor under
>> the driver's seat.
>>
>> Underneath the truck, on the rocker panel just beneath the seatbelt
>> anchor point, is a factory-made hole in the floor. This hole is closed
>> with a removable rubber plug. I ran the radio's power lead through this
>> rubber plug, along the frame, into the engine compartment where I
>> attached the positive lead to the battery and the negative lead to
>> chassis ground.
>>
>> I planned to run the antenna leads out through the same hole then run
>> them along the frame into the sidewall of the bed to the rear of the
>> truck where I will mount a VHF/UHF antenna in one rear stake hole and an
>> ATAS-120 in the other rear stake hole, using the GeoTools mount:
>> http://www.geotool.com/antmount.htm
>>
>> I took the truck in for service last week and the service advisor gave me
>> a long lecture about keeping the coax away from the air bag and away from
>> the seatbelt retractor. He told me the retractor has a small explosive
>> charge in it that can be set off by radiation from coax. Ditto for the
>> airbag.
>>

>> The route I planned for the coax takes it right next to the seatbelt
>> retractor and I am now re-thinking my installation. I could route the
>> coax from underneath the driver's seat directly to the back of the cab
>> and drill a hole in the floorboard, centered on the cab at the back wall
>> of the cab, and run the coax out of that hole. This would get a foot or
>> more separation between the coax and the retractor.
>>
>> I plan to ground the hell out of this installation.
>> -- The power lead is grounded to the frame in the engine compartment.
>> -- I have a 10 gauge pigtail -- one end will be bolted under one of the
>> bolts that attaches the seat frame to the floorboard and the other end
>> will be bolted to the 857 chassis.
>> -- The antenna mounts bolt directly onto the chassis; I will sand off the
>> paint and use star washers to get good contacts at these mounting points.
>>
>> Also, I will use double-shielded RG-8X for the coax.
>>
>> I see a lot of trucks like mine (the B4000 is the same truck as the Ford
>> Ranger) with CB installations -- I have never stopped anyone and asked
>> but it seems to me the normal CB installation is nowhere near as good as
>> mine and they don't seem to have problems. Of course, I'm running 100
>> watts and they are running only 5 (right???).
>>
>> Has anyone out there had experience with HF mobile installations in the
>> Mazda or Ranger pickups?
>>
>> Thanks for your assistance.
>

842. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 00:31:27 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dr3sgv$6o9$1@engnntp2.cig.mot.com>
Source record: 65004

While the lumped element match is a viable solution. Here's some info (I don't see Cecil's response)

The spacing of the ~1/4 wave matching section is not critical - here's why. First, it can be viewed as nothing more than a section of transmission line, obviously shorted at the bottom (though this section does not have to be vertical, it's just convenient in many cases).
The spacing and thickness of the conductors will determine the characteristic impedance (Z0). Normally the Z0 of T-Line is critical, but this is a bit of a different situation. You are trying to get a match between the 50 ohms side and something around 2000-3000 ohms (I'll use 2500) which is at the bottom end of the (vertical) 1/2 wave antenna. Now, on this design, we have the "liberty" of connecting the 50 ohm line anywhere we want on the matching section.
And, second, if you view the resulting impedance along the line as varying from zero at the bottom (shorted end) to 2500 at the top (antenna feed point), there certainly will be some location (nearer the short) which is at or close to 50 ohms.
The higher the Z0 of the matching section, the higher up you'll have to go to get the best match. I'm pretty sure in is my 1947 handbook (non ARRL) that has one, but it is wires and a wood frame.

There will be, however, discussion regarding the balanced connection on the matching section and the unbalanced coax, but I won't go into there. I'm sure others will...as well as the fact that it doesn't matter which side the coax center conductor should be connected to (doesn't matter).

You can also do a search on "Arrow Antenna" and see an interesting (and oft argued) variation that does not use a short at the bottom.

73, Steve, K9DCI

"JIMMIE" <JIMMIEDEE123@YAHOO.COM> wrote in message news:1137998729.302357.288870@g44g2000cwa.googlegroups.com...
> Thanks Cecil, I was concerned about spacing of the stub more than
> anything else. I guesstimated this should be about a foot. I also know
> I could be totally wrong. By looking at some plans the distance between
> the short and long tubes seems to vary with the frequency and size of
> the tube. Doubt if it is too critical. I downloaded EZNEC a few years
> ago and could never figure out how to use it.
>

843. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 00:45:38 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dr3tbi$7a5$1@engnntp2.cig.mot.com>
Source record: 65005
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

<hhc314@yahoo.com> wrote in message
news:1137785765.969348.81760@g14g2000cwa.googlegroups.com...
> Same here Cecil.
>
> ...
> The problem is not for us elders, but for the younger people who will
> hopefully someday reach 65.

If someone is too young to worry about this, it won't be 65, but higher.
If your retirement age is within 5 years, it's already 66.

> Today, most of these kids don't realize is
> that the fault with the Social Security system is not in its basic
> design,

I don't know the ratio of SS to SSI, but it's all the original ponzi
scheme.

Just as Curmudgeonly yours, Steve, K,9.D;C'I

844. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 00:59:41 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dr3u5t$800$1@engnntp2.cig.mot.com>
Source record: 65006
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

<hhc314@yahoo.com> wrote in message
news:1137709653.497618.151660@o13g2000cwo.googlegroups.com...
> Tom, realize that many newsgroup readers are so young that they are not
> familiar with the Ponzi scam. ...
>
> http://home.nycap.rr.com/useless/ponzi/
> Harry C.

Digressing even further...telemarketers...

One evening when Wife was out doing schooling, a telemarkerter called. I knew by the blank beginning while the computer connected the next operator.

Tele: "Is Mrs N. Home?"

Me: (somewhat grufly) "She's not here."

Tele: "Is Mr. N home?"

Me: (More Grufly) "Haven't seen him in three weeks!"

Tele: "Oh, then I'll call back at a more convenient time."

C R A C K E D me up.

How do I think of this stuff??

So far, 3/4 times I got the septic additive salesman to hang up on me... "Now, After dumping $175 of your powder down the pot, how will I know if the stuff is really working like you say...." The 4th time, I couldn't shake him...even though I finally told him I was only going on to keep him on as long as I could to keep him from bothering as many others. I had to hang up...shucks!

73, Steve, K,9.D;C'I

845. Re: Coax Quest. ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 01:01:34 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <O%eBf.4494$rH5.1107@newsread2.news.atl.earthlink.net>
Source record: 65003

"Robert11" <rgsros@notme.com> wrote in message
news:udCdnVAFZploR0nenZ2dnUVZ_t2dnZ2d@comcast.com...
> Hello:
>
> Don't have a good feeling for the significance of this:
>
> For a receive only application, using coax from the Balun of a simple
> outside antenna to the receiver,
> is a loss of, e.g., 2.5 db "meaningful" ?
>
> Specifics would be 100 feet of RG 58 at 30 MHz
>
> Or is it worth the extra $ to go to a less lossy coax (application would
> always be for receive only)
>
> BTW: R/S Coax a decent quality ?
>
> Thanks,
> B.

Don't get the R/S coax. If you can handle the aluminum wire shielding of the cable TV RG-6 coax , use that. Less loss and the 70 ohm vrs the 50 ohm is nothing to worry about. I usually use the RG-8X coax for frequencies below 30 mhz instead of the rg-58. Not that more expensive.

846. Re: Radial Grounds

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 01:45:56 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <oFfBf.108586$AP5.38242@edtnps84>
Source record: 65007

"Richard Fry" <rfry@adams.net> wrote in message
news:43d4e387_5@newsfeed.slurp.net...
> The link below leads to a very good paper on this topic
> written by LB Cebik, and illustrated with many plots and
> graphs.
>
> http://www.cebik.com/gp/gr.html

Very interesting, thanks. Both of Cebik's books
(www.nittany-scientific.com) also make very good reading.

847. Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 02:09:50 UTC
From: bruno.lerer@gmail.com
Message-ID: <1138068590.062816.77730@g14g2000cwa.googlegroups.com>
Source record: 65008
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

Yet another strange question from yours truly: on the roof of my house, anchored to the chimney, is a large outdoor antenna. No idea which antenna - it was installed before my time, probably 15 years ago (or more) and, for various reasons, I can't climb on the roof to find out. From that antenna and into the house runs a brown cable (or is it wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission" and a bunch of patent numbers.

For some strange reason (it may have been done by the cable company when cable was first installed in the house - also before my time), that Belden cable was cleanly cut mid-way through its run across the basement. While it doesn't look like any twin-lead cable I've seen before (and, admittedly, I haven't seen that many), it has a white core which looks like frozen foam and what appear to be two very thin metal lines, one on each side of the core.

And the question: I want to find out if that antenna+cable setup still delivers a signal. I would like to do it by connecting the Belden cable to a standard RG6 coax and then to a regular or HD tuner. I understand that this connection would require a gizmo called a balun but that's as far as my understanding goes. So what type of balun is it (if there is more than one)? How difficult is it to find? I imagine I need to strip the Belden cable on one hand and the RG6 on the other in order to connect them to the balun. Is it possible and, if so, how is it done?

Thanks.

848. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 02:33:45 UTC
From: John McGaw <nobody@nowh.ere>
Message-ID: <xjgBf.6171$vp6.5823@bignews6.bellsouth.net>
Source record: 65009
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

bruno.lerer@gmail.com wrote:
> Yet another strange question from yours truly: on the roof of my house,
> anchored to the chimney, is a large outdoor antenna. No idea which
> antenna - it was installed before my time, probably 15 years ago (or
> more) and, for various reasons, I can't climb on the roof to find
> out. From that antenna and into the house runs a brown cable (or is it
> wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission" and
> a bunch of patent numbers.
>
> For some strange reason (it may have been done by the cable company
> when cable was first installed in the house - also before my time),
> that Belden cable was cleanly cut mid-way through its run across the
> basement. While it doesn't look like any twin-lead cable I've seen
> before (and, admittedly, I haven't seen that many), it has a white
> core which looks like frozen foam and what appear to be two very thin
> metal lines, one on each side of the core.
>
> And the question: I want to find out if that antenna+cable setup still
> delivers a signal. I would like to do it by connecting the Belden
> cable to a standard RG6 coax and then to a regular or HD tuner. I
> understand that this connection would require a gizmo called a balun
> but that's as far as my understanding goes. So what type of balun is
> it (if there is more than one)? How difficult is it to find? I imagine
> I need to strip the Belden cable on one hand and the RG6 on the other
> in order to connect them to the balun. Is it possible and, if so, how
> is it done?
>
> Thanks.
>

Typically a 300 to 75 ohm balun will have a pair of screw terminals for the twin lead connection and an F connector for the coax connection. Thus the twin lead simply needs stripping and screwing (yes, I know how it sounds) but the other side will require that you install the appropriate connector on the coax to match to the connector on the balun. Sadly the most common sort of balun to be found has a male F connector and the most common F connector for coax is also a male so you will probably have to come up with a female-female F adapter to match them up.

--
John McGaw
[Knoxville, TN, USA]
http://johnmcgaw.com

849. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 02:34:05 UTC
From: BruceR <br@NOhawaiiSPAM.com>
Message-ID: <xmgBf.1440$Z3.1322@tornado.socal.rr.com>
Source record: 65010
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

You can pick up a 300 ohm to 75 ohm matching transformer from Radio
Shack, Wal-Mart or even Walgreens for a couple of bucks. The 2 wires
from your existing flat cable connect to one side and a coax cable
connects to the other through a standard F connector.

From:bruno.lerer@gmail.com
bruno.lerer@gmail.com

> Yet another strange question from yours truly: on the roof of my
> house, anchored to the chimney, is a large outdoor antenna. No idea
> which antenna - it was installed before my time, probably 15 years
> ago (or more) and, for various reasons, I can't climb on the roof to
> find
> out. From that antenna and into the house runs a brown cable (or is
> it wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission" and
> a bunch of patent numbers.
>
> For some strange reason (it may have been done by the cable company
> when cable was first installed in the house - also before my time),
> that Belden cable was cleanly cut mid-way through its run across the
> basement. While it doesn't look like any twin-lead cable I've seen
> before (and, admittedly, I haven't seen that many), it has a white
> core which looks like frozen foam and what appear to be two very thin
> metal lines, one on each side of the core.
>
> And the question: I want to find out if that antenna+cable setup still
> delivers a signal. I would like to do it by connecting the Belden
> cable to a standard RG6 coax and then to a regular or HD tuner. I
> understand that this connection would require a gizmo called a balun
> but that's as far as my understanding goes. So what type of balun is
> it (if there is more than one)? How difficult is it to find? I imagine
> I need to strip the Belden cable on one hand and the RG6 on the other
> in order to connect them to the balun. Is it possible and, if so, how
> is it done?
>
> Thanks.

850. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 02:34:34 UTC
From: Art <arthurgernberg@comcast.net>
Message-ID: <BpidnaBh6JbeD0jeRVn-rw@comcast.com>
Source record: 65011
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

300 Ohm foam Filled Transmission Line, Matching Balum 300 ohm to 75 Ohm with
the appropiate terminals will work just fine with minimual loss. The
Matching Devices can be probably bought at the local Radio Shack or any
Radio TV Supply.
<bruno.lerer@gmail.com> wrote in message
news:1138068590.062816.77730@g14g2000cwa.googlegroups.com...
> Yet another strange question from yours truly: on the roof of my house,
> anchored to the chimney, is a large outdoor antenna. No idea which
> antenna - it was installed before my time, probably 15 years ago (or
> more) and, for various reasons, I can't climb on the roof to find
> out. From that antenna and into the house runs a brown cable (or is it
> wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission" and
> a bunch of patent numbers.
>
> For some strange reason (it may have been done by the cable company
> when cable was first installed in the house - also before my time),
> that Belden cable was cleanly cut mid-way through its run across the
> basement. While it doesn't look like any twin-lead cable I've seen
> before (and, admittedly, I haven't seen that many), it has a white
> core which looks like frozen foam and what appear to be two very thin
> metal lines, one on each side of the core.
>
> And the question: I want to find out if that antenna+cable setup still
> delivers a signal. I would like to do it by connecting the Belden
> cable to a standard RG6 coax and then to a regular or HD tuner. I
> understand that this connection would require a gizmo called a balun
> but that's as far as my understanding goes. So what type of balun is
> it (if there is more than one)? How difficult is it to find? I imagine
> I need to strip the Belden cable on one hand and the RG6 on the other
> in order to connect them to the balun. Is it possible and, if so, how
> is it done?
>
> Thanks.
>

851. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 02:38:40 UTC
From: BruceR <br@NOhawaiiSPAM.com>
Message-ID: <QqgBf.1443$Z3.1310@tornado.socal.rr.com>
Source record: 65012
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

Here's a picture of one w/female f connector:
http://store.eenid.us/ph61009.html

From:Art
arthurgernberg@comcast.net

> 300 Ohm foam Filled Transmission Line, Matching Balum 300 ohm to 75
> Ohm with the appropiate terminals will work just fine with minimual
> loss. The Matching Devices can be probably bought at the local Radio
> Shack or any Radio TV Supply.
> <bruno.lerer@gmail.com> wrote in message
> news:1138068590.062816.77730@g14g2000cwa.googlegroups.com...
>> Yet another strange question from yours truly: on the roof of my
>> house, anchored to the chimney, is a large outdoor antenna. No idea
>> which antenna - it was installed before my time, probably 15 years
>> ago (or more) and, for various reasons, I can't climb on the roof to
>> find out. From that antenna and into the house runs a brown cable
>> (or is
>> it wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission"
>> and a bunch of patent numbers.
>>
>> For some strange reason (it may have been done by the cable company
>> when cable was first installed in the house - also before my time),
>> that Belden cable was cleanly cut mid-way through its run across the
>> basement. While it doesn't look like any twin-lead cable I've seen
>> before (and, admittedly, I haven't seen that many), it has a white
>> core which looks like frozen foam and what appear to be two very thin
>> metal lines, one on each side of the core.
>>
>> And the question: I want to find out if that antenna+cable setup
>> still delivers a signal. I would like to do it by connecting the
>> Belden cable to a standard RG6 coax and then to a regular or HD
>> tuner. I understand that this connection would require a gizmo
>> called a balun but that's as far as my understanding goes. So what
>> type of balun is it (if there is more than one)? How difficult is it
>> to find? I imagine I need to strip the Belden cable on one hand and
>> the RG6 on the other in order to connect them to the balun. Is it
>> possible and, if so, how is it done?
>>
>> Thanks.

852. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 03:16:13 UTC
From: buffalobill <wjohnston@adelphia.net>
Message-ID: <1138072573.772686.116470@g43g2000cwa.googlegroups.com>
Source record: 65013
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

TN climate may have rusted out your 300 ohm rooftop antenna, making
your old system low quality or possibly useful to a radio.
see hdtv antenna compass directions from entering just your zipcode at:
http://www.antennaweb.org/aw/Address.aspx

853. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 03:19:52 UTC
From: Ken Weitzel <kweitzel@shaw.ca>
Message-ID: <s1hBf.436754$ki.23798@pd7tw2no>
Source record: 65014
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

LoL wrote:
> And they had 16th century antenna wire??????????????????????????????

Yes. It was made of kite string. My friend Benjamin told me. :)

Ken

854. Aluminum Free-standing Tower Wanted

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 03:29:50 UTC
From: Bob <none@thistime>
Message-ID: <0ZudnVCjE4GxAkjeRVn-qA@giganews.com>
Source record: 65015

In pick up range of North Texas.
eh54 at sbcglobal dot net

855. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 04:26:26 UTC
From: "Michael A. Terrell" <mike.terrell@earthlink.net>
Message-ID: <43D5AC4F.C941345E@earthlink.net>
Source record: 65016
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

Steve Nosko wrote:
>
> Digressing even further...telemarketers...
>
> One evening when Wife was out doing schooling, a telemarkerter called. I
> knew by the blank beginning while the computer connected the next operator.
>
> Tele: "Is Mrs N. Home?"
>
> Me: (somewhat grufly) "She's not here."
>
> Tele: "Is Mr. N home?"
>
> Me: (More Grufly) "Haven't seen him in three weeks!"
>
> Tele: "Oh, then I'll call back at a more convenient time."
>
> C R A C K E D me up.
>
> How do I think of this stuff??
>
> So far, 3/4 times I got the septic additive salesman to hang up on me...
> "Now, After dumping $175 of your powder down the pot, how will I know if the
> stuff is really working like you say...." The 4th time, I couldn't shake
> him...even though I finally told him I was only going on to keep him on as
> long as I could to keep him from bothering as many others. I had to hang
> up...shucks!
>
> 73, Steve, K,9.D;C'I

Years ago (Before Caller ID) I had the same heating and air
conditioning company call me over 30 times in one week. Nothing worked
with this woman. She was insistent that I just HAD to have my central
air conditioning "Tuned up", even after I told her repeatedly I didn't
have central air, or even a window air conditioner. Finally, I asked
her how many incoming phone lines they had, then I told them that if I
got one more call from them that I would contact everyone I knew to have
them call and pretend to be interested in their repair services or to
buy a new system, then give them fake addresses, or just keep the phone
lines tied up to prevent real customers from being able to reach them.
I was informed by her that it was harassment, but I just laughed and
asked how they would know which calls were real, from the others. I
asked why I should return the harassment I had received from her all

week long. She never called me again.

--
Service to my country? Been there, Done that, and I've got my DD214 to
prove it.
Member of DAV #85.

Michael A. Terrell
Central Florida

856. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 05:01:30 UTC
From: not_real@xxx.yyy
Message-ID: <43d5b1b3.1352921@newsgroups.comcast.net>
Source record: 65017
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

On 23 Jan 2006 19:16:13 -0800, "buffalobill" <wjohnston@adelphia.net>
wrote:

>TN climate may have rusted out your 300 ohm rooftop antenna, making
>your old system low quality or possibly useful to a radio.
>see hdtv antenna compass directions from entering just your zipcode at:
>http://www.antennaweb.org/aw/Address.aspx
>

That old twin-lead cable reminds me of the setup in our city apartment
building back in 1961. The twin-lead was connected directly to the
back of the TV with screw terminals. Occasionally a wire would break
and it would be necessary to re-attach it. The problem was how to
strip it... The plastic dielectric was the most awful, stiff material
around.

Thankfully my father showed me the way. He lit it with a match and
burned away the plastic from the bare copper wires. I still remember
the drip drip of hot plastic and the nasty smell it produced.

There weren't many stations, just the ABC, CBS, NBC and a struggling
PBS affiliate that ran shows about "math lessons" for educational TV.
There was also one big-city independent station that ran Laurel &
Hardy, Abbott & Costello, the 3 stooges and some fine local children's
programs.

Every few months a tube on the set would go bad. Then we called the
Zenith Repairman who brought no less than 3 giant tube caddies and
filled up the living room with spare replacement tubes when the cases
were open. Later, every drugstore had a tube-tester available and we
could test and sometimes even replace our own tubes.

Beachcomber

857. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 06:02:55 UTC
From: mm <NOPSAMmm2005@bigfoot.com>
Message-ID: <spfbt1laaneibp2rfrapjodgao0rb4ctp3@4ax.com>
Source record: 65018
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

On 23 Jan 2006 18:09:50 -0800, bruno.lerer@gmail.com wrote:

>Yet another strange question from yours truly: on the roof of my house,
>anchored to the chimney, is a large outdoor antenna. No idea which
>antenna - it was installed before my time, probably 15 years ago (or
>more) and, for various reasons, I can't climb on the roof to find
>out. From that antenna and into the house runs a brown cable (or is it
>wire?) labeled "Belden Celluline 9275 300 ohm UHF transmission" and
>a bunch of patent numbers.

There you go, 300 ohms. Just like other flat lead.

This white foam might be easier to strip than the flat plastic.

You could use screws and nuts to attach this current antenna to the
flat lead side of impedance matching transformer, the small white or
black cylinder 1 3/4inches by a half inch, with flat lead coming out
of one end, and the coax connector at the other end. (Between a
dollar and 2.25. Though only surplus and hamfests charge a dollar.)

And later you could solder the leads if you wanted to.

The female coax connector on transformer will fit well with the male
one on the piece of coax cable you will buy or make.

Some bigger wider ones have screw terminals for the flatlead, and if
the washer has teeth, supposedly you don't even have to strip the
wire. And they may have coax wire coming out with a male connector.

That's when you'll need a M-M adapter, only about 2 or 3 dollars They
sell bothl M-M and F-F adaptors.

www.mouser.com has everything.

I haven't done it, but I think you can just connect the flat lead to
the coax input of a tv, and you'll still get a picture, even if it is
not the best quality. Stick one wire in the hole and touch the other
lead to the threads. Still, I guess if there were no picture, I'd
still try it with the matching transformer.

I used an outdoor antenna in Indianapolis in the 60's and NYC in the
70's and 80's, with flatlead. I didnt' do anything about lightening
protection in either place, and never had a problem. But maybe I
wouldn't do these hookups during a lightening storm. Don't know
whether that caution is necessary or not.

In Brooklyn, I was up on the roof of the apartment building and found
an antenna above my apartment. No one else seemed to be connected to
it, and the wire ran right by my window, so I just connected myself
for 10 years of ghost free viewing.

>For some strange reason (it may have been done by the cable company
>when cable was first installed in the house - also before my time),
>that Belden cable was cleanly cut mid-way through its run across the
>basement. While it doesn't look like any twin-lead cable I've seen
>before (and, admittedly, I haven't seen that many), it has a white
>core which looks like frozen foam and what appear to be two very thin
>metal lines, one on each side of the core.
>
>And the question: I want to find out if that antenna+cable setup still
>delivers a signal. I would like to do it by connecting the Belden
>cable to a standard RG6 coax and then to a regular or HD tuner. I
>understand that this connection would require a gizmo called a balun
>but that's as far as my understanding goes. So what type of balun is
>it (if there is more than one)? How difficult is it to find? I imagine
>I need to strip the Belden cable on one hand and the RG6 on the other
>in order to connect them to the balun. Is it possible and, if so, how
>is it done?
>
>Thanks.

Remove NOPSAM to email me. Please let
me know if you have posted also.

858. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 08:39:34 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dr4p46aok1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 65019

"Cecil Moore" wrote
> My "Electronics Equations Handbook" gives the specifications
> for a "SINCLE-WIRE ABOVE-GROUND TRANSMISSION LINE" including
> Z0, C, L, and resistivity adjusted for frequency.
==========
Single-wire lines -

Primary Constants :
The single conductor has resistance and inductance.
Resistance includes radiation resistance.
Space and its contents has permittivity, permeability and conductance.
The 'return path' is space and whatever it contains.

Secondary Constants :
Phase shift and propagation velocity.
Attenuation (loss).

All parameters obey the classical mathematical rules of Maxwell and
Heaviside.

There are also, very common, 2 and 3-wire (3-phase) transmission lines
which have smaller radiation resistances, but radiation resistances
they DO have depending on conductor spacing.

Reg.

859. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 09:08:12 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1138093692.726948.182650@g49g2000cwa.googlegroups.com>
Source record: 65020

The associate ground system is not practical at this location

860. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 09:31:20 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1138095080.811164.141060@g43g2000cwa.googlegroups.com>
Source record: 65021

Thanks, the impedance of the half wave section is what I really
needed.I was figuring 5 to 10K. The info you and Cecil gave me got me
back on track
Installing a ground system here is very impractical. I wanted to see
how well the J antenna worked. If performance is acceptable I plan to
further experiment with multiple frequenciey antennas, an HF version of
the Copper Catcus. For now I would be happy just to get this antenna
working on one frequency.

861. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 11:02:02 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <yqmdnXirm_a1lEveRVn-rw@comcast.com>
Source record: 65022
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:

> Amos Keag wrote:
>
>
>>Coax should have no rf current on the outside of the cable assuming a
>>good ground at the antenna.
>
> ~~~~~~
>
> Nonsense.
>
> Current on the outside of the coax is caused by imbalance in the
> antenna. A good ground will not get rid of it, in fact it may well be
> the cause if the ground has a different impedance than the antenna.
>
> Bill, W6WRT

Bill, the discussion is about a MOBILE installation. The antenna is end fed against ground, not a balanced dipole type.

862. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 11:04:46 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <yqmdnXurm_ZWlEveRVn-rw@comcast.com>
Source record: 65023
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Joe S. wrote:

> "Amos Keag" <A.K01@comcast.net> wrote in message
> news:66idnRrSFeXkbUneRVn-rQ@comcast.com...
>
>>I use the through hole in the floor of my Ranger [Ford] as you describe.
>
>
> Thanks -- what year is your Ranger? 2004

What bands and power are you running? 40 through 0.7 meters at full
IC-706 MK IIg output [100 watts on HF, reduced on VHF/UHF]

Where is your antenna mounted? OHF on the bed wall near the tail gate.
VHF/UHF on the cab window.

Ever had any malfunctions caused by RF? NOPE!!
>
>

200

863. Re: Aluminum Free-standing Tower Wanted

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 12:21:44 UTC
From: Bill Hall <bhallc21@verizon.net>
Message-ID: <sZoBf.5$AV.2@trnddc07>
Source record: 65024

Go to www.craigslist.com. Go to General, type in "tower" in the keywords.
There is one listed in Ft. Worth, $400.00 (take down). Not mine :>)
Bill

"Bob" <none@thistime> wrote in message
news:0ZudnVCjE4GxAkjeRVn-qA@giganews.com...
> In pick up range of North Texas.
> eh54 at sbcglobal dot net
>

864. Re: Aluminum Free-standing Tower Wanted

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 12:28:46 UTC
From: Bill Hall <bhallc21@verizon.net>
Message-ID: <24pBf.8$AV.4@trnddc07>
Source record: 65025

Also one more on Craigslist. Under For Sale. Jan. 16.2006 60 ft. Rohn (on the ground). $300.00 HTH
Bill
"Bob" <none@thistime> wrote in message news:0ZudnVCjE4GxAkjeRVn-qA@giganews.com...
> In pick up range of North Texas.
> eh54 at sbcglobal dot net
>

865. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 12:58:14 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9755328B63363doldridgsprintca@64.59.135.159>
Source record: 64926

"an old friend" <kb9rqz@yahoo.com> wrote in news:1138059456.579317.228830
@o13g2000cwo.googlegroups.com:

> having lost the support on my 6m beam and haing a turner able to tune a
> random wire I have decided totry it
>
> since i don't know I will like it id rather avoid cutting this nice
> piece of wire
>
> thinking about unwiding some wire from a 1/2 mile spool anythoungts on
> howmuch and what happens if I don't cut it off the spool(just unwind
> 10ft fifty or whatever leaving one large inducer on the end of the
> "antenna

The thing with random wires is that you get a voltage loop at the end and
then voltage loops every half wave back towards the feed end. At the
feed end you will have some random combination of reactance and
resistance to feed, which will tend to require a tuner. And you'll want
a counterpoise to ground it all. For that a quarter wave of wire will do
(or a half-wave attached to the tuner's ground post in the center).
Without a good counterpoise, your tuner and rig may get a bit hot RF-
wise.

--
Dave Oldridge+
ICQ 1800667

866. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 13:58:28 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <8oqBf.100$AV.20@trnddc07>
Source record: 64927

"JIMMIE" <JIMMIEDEE123@YAHOO.COM> wrote in message
news:1138093692.726948.182650@g49g2000cwa.googlegroups.com...
> The associate ground system is not practical at this location
>
What associated ground system are you referring to?

867. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 14:01:54 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <2KydnYwppqSmrkvenZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 64928
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Amos Keag" <A.K01@comcast.net> wrote in message
news:yqmdnXurm_ZWlEveRVn-rw@comcast.com...
> Joe S. wrote:
>
>> "Amos Keag" <A.K01@comcast.net> wrote in message
>> news:66idnRrSFeXkbUneRVn-rQ@comcast.com...
>>
>>>I use the through hole in the floor of my Ranger [Ford] as you describe.
>>
>>
>> Thanks -- what year is your Ranger? 2004
>
>
> What bands and power are you running? 40 through 0.7 meters at full IC-706
> MK IIg output [100 watts on HF, reduced on VHF/UHF]
>
> Where is your antenna mounted? OHF on the bed wall near the tail gate.
> VHF/UHF on the cab window.
>
>
> Ever had any malfunctions caused by RF? NOPE!!

Thanks. Your installation is almost identical to mine:
-- FT-857, 100 watts on HF, 25 or so on VHF/UHF
-- Antennas mounted on the rear corners of the bed, in the rear stake holes.

I'm using double-braid RG-8X.

>>
>>
>
> 200
>

868. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 14:40:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Z%qBf.16220$Yu.9580@newssvr27.news.prodigy.net>
Source record: 64929

Reg Edwards wrote:
> There are also, very common, 2 and 3-wire (3-phase) transmission lines
> which have smaller radiation resistances, but radiation resistances
> they DO have depending on conductor spacing.

One of the ARRL Antenna Compendiums describes a 4-wire transmission
line whose Z0 is selectable depending on how the wires are connected.
--
73, Cecil http://www.qsl.net/w5dxp

869. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 15:14:17 UTC
From: bruno.lerer@gmail.com
Message-ID: <1138115657.063432.84870@g47g2000cwa.googlegroups.com>
Source record: 64930
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

Thanks everyone for the info. One piece is still missing (at least for me) - how do you actually strip a clean cut twin-lead wire? Beachcomber's retelling of his father's method - burn everything around the wires - sounds good, except that if I do that in the basement (where the wire terminates and air circulation is minimal) - the resulting smell will probably be grounds for divorce and a major violation of zoning regulations :)

Nevertheless, I'm willing to use that method as a last resort. Question - is it actually the last resort?

870. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 15:18:13 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D64535.8000403@comcast.net>
Source record: 64931

Thanks. I have two coupler systems, one with very good directivity and one with only moderate directivity. The antenna is resonant at about 141.6 MHz. There is a difference of about a couple of hundred kc between the systems.

Now on the the "R" measurements. Both systems indicate an antenna resistance of over 30 Ohms. This antenna has been modeled with three different models. They all indicate a Rr in the range of 5 Ohms. The antenna is grounded by a 3 foot by 5 foot screen mesh. While this is not infinite, it should provide a good ground. Do you have a suggestion of where to look for the discrepancy?

Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D4686E.6000408@comcast.net...
>
>>Frank, this is consistent with what I am observing. The claim is for a
>>given frequency when a 0j load (in the range of 10 to 40 Ohms) and an
>>unknown load (assumed to be in the range of 10 to 40 Ohms) show the same
>>phase shift then the unknown is 0j also. It is not necessary that the
>>loads be the same value, only within the range. (I will have to experiment
>>with loads over 60.)
>>
>>So far nothing has surfaced to contradict this.
>>
>>Thanks - Dan
>
>
> Dan, essentially your assumptions are correct providing you have no error
> terms such as poor directivity.
>
> Frank
>
>

871. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 15:37:47 UTC
From: Ken Weitzel <kweitzel@shaw.ca>
Message-ID: <fRrBf.323928$2k.21562@pd7tw1no>
Source record: 64932
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

bruno.lerer@gmail.com wrote:
> Thanks everyone for the info. One piece is still missing (at least for
> me) - how do you actually strip a clean cut twin-lead wire?
> Beachcomber's retelling of his father's method - burn everything around
> the wires - sounds good, except that if I do that in the basement
> (where the wire terminates and air circulation is minimal) - the
> resulting smell will probably be grounds for divorce and a major
> violation of zoning regulations :)
>
> Nevertheless, I'm willing to use that method as a last resort. Question
> - is it actually the last resort?

Hi...

Not only smell, but lots of smoke :)

Back in the good old days (around the time sunshine was
invented) I would have done it in your house by putting
the lead flat on top of something hard and not important...
the top of my caddy, perhaps). Then with a knife I'd cut
a slit clean through it alongside each of the wires for an
inch or so. Next fold back the resulting center piece and
cut it off. Now you're left with what for all practical
purposes is just two separate wires, easily strippable with
side cutters or your knife.

I hope that's well enough explained. :)

Take care.

Ken

872. New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 16:22:59 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138119779.443881.171030@g49g2000cwa.googlegroups.com>
Source record: 64933

For those still interested,

I just released the new 5.6. version for the 4nec2 antenna modeling
freeware, for which I created a much tighter interface with the
ItsHF/VOACAP propagation prediction software. For more info see
http://home.ict.nl/~arivoors/

Greetings,
Arie.

873. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 16:45:27 UTC
From: nm5k@wt.net
Message-ID: <1138121127.777572.38850@g44g2000cwa.googlegroups.com>
Source record: 64934

>Well, there's the problem. You stopped your dipole where
>your vertical started so any comparisons are bogus.

Bogus? How so?

>Your
>dipole was an NVIS antenna. :-)

And I want it to be.

It's not a fair comparison
since the vertical was given a 2x height advantage. (That's
like putting my three foot six inch grandson up against
Shaquelle O'Neal in basketball. :-) Put the dipole at 70
feet, like the vertical was, and see what happens.

I mounted both as high as they would go. I don't consider
the GP as having quite twice the height advantage due to
the current distribution.

The top of my vertical was at 53 ft. and my dipole was
one of its upper guy wires at about 50 feet so the two
heights were essentially opposite yours.

No , just different..

Which brings up another question. If the top of a vertical
is at a certain height, what height of dipole would be a fair
comparison?
Dunno...But max current on the GP as at the base..

>It is certainly unfair to compare feedpoints
>at the same height, like you did.

No, it isn't. I can compare any setup I like. I'm not
trying to be fair. I don't want both antennas to act
the same.

It may also be slightly
unfair to compare them at the same maximum heights, like I did.
It seems a fair comparison might be made when half the vertical
is lower than the dipole and half is higher than the dipole,
i.e. the height of the dipole is at the midpoint of the
monopole?

I don't think it matters a whole heck of a lot. I never intended
for my dipole to be a dx antenna. Thats the whole purpose
of putting up the GP. The dipole is for NVIS and medium

range. The GP is for long range.
MK

874. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 16:48:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <kTsBf.13979$_S7.283@newssvr14.news.prodigy.com>
Source record: 64935
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

bruno.lerer@gmail.com wrote:
> - how do you actually strip a clean cut twin-lead wire?

Use an Exacto knife to trim away the center insulation
and then use conventional wire strippers.
--
73, Cecil http://www.qsl.net/w5dxp

875. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 16:54:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <2ZsBf.13981$_S7.1117@newssvr14.news.prodigy.com>
Source record: 64936

nm5k@wt.net wrote:
> I'm not trying to be fair.

Nuff said. I'll keep that in mind next time you
say a vertical is 24 dB better than a dipole. :-)
--
73, Cecil http://www.qsl.net/w5dxp

876. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 16:57:04 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehlxr5238s2005@cnews.newsguy.com>
Source record: 64940
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Amos Keag wrote:

> Bill, the discussion is about a MOBILE installation. The antenna is
> end fed against ground, not a balanced dipole type.
~~~~~~

I'm well aware of that. A 1:1 choke type balun at the antenna feed
point will make it a balanced system and the RF on the coax problem
will vanish.

Bill, W6WRT
~~~~~~

877. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 17:11:07 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43d64c4e@fidonet.org>
Source record: 64937

"John McGaw" bravely wrote to "All" (23 Jan 06 21:33:45)
--- on the heady topic of "Re: Connecting 16th century antenna wire to 21st century coax"

JM> From: John McGaw <nobody@nowh.ere>
JM> Xref: core-easynews alt.home.repair:704999 comp.home.automation:156663
JM> sci.electronics.repair:356301 rec.radio.amateur.antenna:223073
JM> found has a male F connector and the most common F connector for coax
JM> is also a male so you will probably have to come up with a
JM> female-female F adapter to match them up.

In a pinch a little tube type adaptor with 300 ohm pig tails could be
directly soldered to the twinlead. Also a combiner with a 300 ohm port
will typically have a male F.

A*s*i*m*o*v

... My other vehicle is a Galaxy Class golfball washer...

878. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 17:11:13 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43d64c4f@fidonet.org>
Source record: 64938

"LoL" bravely wrote to "All" (24 Jan 06 02:54:59)
--- on the heady topic of "Re: Connecting 16th century antenna wire to 21st century coax"

Lo> From: LoL <lol@lol.com>
Lo> Xref: core-easynews alt.home.repair:705009 comp.home.automation:156667
Lo> sci.electronics.repair:356308 rec.radio.amateur.antenna:223077

Lo> And they had 16th century antenna wire??????????????????????????????

Guess not!

On 18 Feb. 1908, Lee DeForest was granted U.S. Patent No. 879,532
titled 'space telegraphy,'

A*s*i*m*o*v

879. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 17:13:50 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <iftBf.132857$km.107456@edtnps89>
Source record: 64939

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43D64535.8000403@comcast.net...
> Thanks. I have two coupler systems, one with very good directivity and one
> with only moderate directivity. The antenna is resonant at about 141.6
> MHz. There is a difference of about a couple of hundred kc between the
> systems.
>
> Now on the the "R" measurements. Both systems indicate an antenna
> resistance of over 30 Ohms. This antenna has been modeled with three
> different models. They all indicate a Rr in the range of 5 Ohms. The
> antenna is grounded by a 3 foot by 5 foot screen mesh. While this is not
> infinite, it should provide a good ground. Do you have a suggestion of
> where to look for the discrepancy?
>
> Dan

Dan, the frequency difference is most likely caused by the poor directivity of one of your couplers, so would not worry about it. Just take the reading with the better coupler. The forward power coupled into the reverse port will cause a phase error.

As for your modelling: what program are you using, and how do you describe the ground screen? I ran a quick model above a perfect ground -- using NEC2. According to my program the input impedance is 36 ohms at resonance. The radiation efficiency, with a copper conductor, is 99.6%, so the radiation resistance is obviously very close to 36 ohms. I can run a model with a ground screen, but would like to replicate your structure as close as possible. The actual height of my model monopole is 0.505 m (19.88"), and is resonant at 141.8 MHz.

Frank

880. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 17:55:26 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1138125326.782627.208170@g49g2000cwa.googlegroups.com>
Source record: 64941

I hope this didnt go in twice, See the pdf file from Dan's post. It would be easier for me to buid a 100Ft antenna than to install a counterpoise like that.

http://k6mhe.com/files/DualBandVert.pdf

881. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 20:20:18 UTC
From: BruceR <br@NOhawaiiSPAM.com>
Message-ID: <6_vBf.2009$Ou1.769@tornado.socal.rr.com>
Source record: 64942
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

Since you have the foam filled stuff it's a little more difficult to
trim away the center so I'd use a utility knife to make a slit along
each side and pull the wires out. Then just cut away the remaining
center carcass. Finally, attach the leads to the wire leads or screw
terminals of the matching transformer.

From:bruno.lerer@gmail.com
bruno.lerer@gmail.com

> Thanks everyone for the info. One piece is still missing (at least
> for me) - how do you actually strip a clean cut twin-lead wire?
> Beachcomber's retelling of his father's method - burn everything
> around the wires - sounds good, except that if I do that in the
> basement (where the wire terminates and air circulation is minimal) -
> the resulting smell will probably be grounds for divorce and a major
> violation of zoning regulations :)
>
> Nevertheless, I'm willing to use that method as a last resort.
> Question - is it actually the last resort?

882. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 20:52:33 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1138135953.799596.9140@f14g2000cwb.googlegroups.com>
Source record: 64943

Careful about assuming that a 1/4 wave stub will do the trick...

To match a 50 ohm line to a 2500 ohm load using a shorted stub at the
transmission line end and a section between the 50 ohm line and the
2500 ohm load requires (using sections shorter than 1/4 wave for each):

50 ohm stub & section: 8.2 degrees & 81.9 degrees
75 ohm: 8.3 & 82.1 degrees
100 ohm: 8.5 & 82.2 degrees
150 ohm: 9.0 & 82.6 degrees
200 ohm: 9.8 & 83.3 degrees
300 ohm: 15.0 & 85.7 degrees
350 ohm: 45 & 88.9 degrees
353.55 ohm: 90 & 90 degrees

Note that the last on is the case of not using a stub (90 degree stub
looks like an open circuit). The 1/4 wave line impedance should be
sqrt(Zin*Zout).

You can adjust the length to tune out reactance, too.

But if you're matching resistive load to resistive line, the total
length of the stub part and the series part will be longer than 1/4
wave, and more so as the impedance of the stub and series part rise.
You can't use this arrangement if the stub and series section
impedances are higher than sqrt(Zin*Zout). SO--beware of spacing the
two too far apart!

Cheers,
Tom

883. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 20:52:47 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11td4t3pb0gbs53@corp.supernews.com>
Source record: 64944

nm5k@wt.net wrote:
>
> It's not a fair comparison
> since the vertical was given a 2x height advantage. (That's
> like putting my three foot six inch grandson up against
> Shaquelle O'Neal in basketball. :-) Put the dipole at 70
> feet, like the vertical was, and see what happens.
>
> I mounted both as high as they would go. I don't consider
> the GP as having quite twice the height advantage due to
> the current distribution.
>
> The top of my vertical was at 53 ft. and my dipole was
> one of its upper guy wires at about 50 feet so the two
> heights were essentially opposite yours.
>
> No , just different..
>
> Which brings up another question. If the top of a vertical
> is at a certain height, what height of dipole would be a fair
> comparison?
> Dunno...But max current on the GP as at the base..

There's no "fair" comparison between two such different antennas, if your goal is some sort of generalized conclusion about which kind of antenna is "better". The only valid comparison would be a vertical at whatever height you can put it at vs a dipole at whatever height you can put it at. Then, with your particular ground conditions and azimuth and elevation angles of interest, you can decide which is better. Any general binary conclusion about whether a vertical or dipole is "better" is nonsense, so there's no point in making rules for comparing them.

Roy Lewallen, W7EL

884. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 20:57:22 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11td55lfn6go012@corp.supernews.com>
Source record: 64945

mcalhoun@ksu.edu wrote:
>>>>I disagree. Transmission lines have two conductors. Radials don't.
>>>
>>>Roy, try using your imagination!
>>
>>My "Electronics Equations Handbook" gives the specifications
>>for a "SINCLE-WIRE ABOVE-GROUND TRANSMISSION LINE" including
>>Z0, C, L, and resistivity adjusted for frequency.
>
>
> Don't forget the single-conductor transmission line invented by Goubau
> and named "G-Line" in his honor. Quoting from page 164 of my 1972 copy
> of "The Radio Amateur's VHF Manual":
>
> "The basic idea is that a single conductor can be an almost loseless
> transmisison line at untra-high frequencies, if a suitable launching
> device is used. A similar launcher is placed at the other end.
> Basically the launcher is a cone-shaped device which is a flared
> extension of the coaxial feedline...."

I was in error in saying that a transmission line must have two
conductors. The "G-Line" is the one exception I know of. But it
certainly doesn't function in anywhere near the same manner as a buried
radial. I'm afraid only Reg knows how his "R-Lines" work.

Roy Lewallen, W7EL

885. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 21:07:01 UTC
From: Mike Coslo <mjc5remove@psu.edu>
Message-ID: <43D696F5.3080108@psu.edu>
Source record: 64946

Cecil Moore wrote:
> nm5k@wt.net wrote:
>
>> I'm not trying to be fair.
>
>
> Nuff said. I'll keep that in mind next time you
> say a vertical is 24 dB better than a dipole. :-)

24 db *when* for all that matter. I would note that my vertical *is* indeed about 2 S units noisier than my dipole. And some signals come in stronger, and some come in weaker. My guess is that it depends on where the signals originated from, smarter people may know the real reason.

- 73 de Mike KB3EIA -

886. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 22:56:05 UTC
From: Ron McConnell <rcmcc@earthlink.net>
Message-ID: <q5bdt1d243tmafn222s4dpk4r3805lrqku@4ax.com>
Source record: 64947

Tim, k7itm, writes
> ... the total length of the stub and series part will be longer than 1/4 wave

The J-Pole and End-Fed Zepp design program in George VE3ERP Murphy's freeware HAMCALC package of over 300 radio programs yields results consistent with this litte known fact about the so-called "1/4 wave" matching section for J-Poles. The program is a version of Gary N3GO O'Neill's program from his Communications Quarterly article on the subject.

The latest version 80 of HAMCALC is available at CQ magazine's web site.

<http://www.cq-amateur-radio.com>

By the way, the matching section for the proposed vertical antenna doesn't have to vertical, does it? Can't it be run horizontally and the overall height reduced from about 50 ft to about 33 ft? As mentioned a L network with an inductor and capacitor would also work instead.

Cheers, 73,

Ron McC.
w2iol@arrl.net

Ronald C. McConnell, PhD

WGS-84: N 40ï¿½ 46' 57.9" +/-0.1"
W 74ï¿½ 41' 21.3" +/-0.1"
FN20ps.77GU96 +/-
V +5058 H +1504

<http://home.earthlink.net/~rcmcc>

Don't argue about facts.
- G. Robert Leopold

887. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 23:16:26 UTC
From: B Fuhrmann <b-fuhrmann-usenet@mplsfridayDELETEskate.com>
Message-ID: <11tddacbnbdi397@corp.supernews.com>
Source record: 64948
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

> bruno.lerer@gmail.com wrote:
>> Thanks everyone for the info. One piece is still missing (at least for
>> me) - how do you actually strip a clean cut twin-lead wire?

"Ken Weitzel" wrote ...
> Back in the good old days (around the time sunshine was
> invented) I would have done it in your house by putting
> the lead flat on top of something hard and not important...
> the top of my caddy, perhaps). Then with a knife I'd cut
> a slit clean through it alongside each of the wires for an
> inch or so. Next fold back the resulting center piece and
> cut it off. Now you're left with what for all practical
> purposes is just two separate wires, easily strippable with
> side cutters or your knife.

BINGO

Other than dedicated strippers (they used to make them), that is the easiest method.

888. Enter the Wireless Innovation Contest Today :: January 30th Deadline

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-24 23:28:44 UTC
From: WIC'06 <darriel@winbc.org>
Message-ID: <1138145324.330187.261910@f14g2000cwb.googlegroups.com>
Source record: 64949

Get your innovation noticed by the right people. The Wireless Innovation Contest 2006 (WIC'06) has an amazing panel of judges, representing the full spectrum of device manufacturers, carriers, industry analysts, professional services, venture capital, entrepreneur and media categories. Detailed information about the judges is on the WIC06 website http://www.winbc.org/contest/judges.html

There is less than a week left to enter WIC'06 and the entry deadline - January 30th, 2006 - will not be extended.

889. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 00:47:24 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <3MmdnUjzf8oHV0veRVn-hQ@comcast.com>
Source record: 64950
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:

> Amos Keag wrote:
>
>
>>Bill, the discussion is about a MOBILE installation. The antenna is
>>end fed against ground, not a balanced dipole type.
>
> ~~~~~~
>
> I'm well aware of that. A 1:1 choke type balun at the antenna feed
> point will make it a balanced system and the RF on the coax problem
> will vanish.
>
> Bill, W6WRT

I give up!! Obviously my 52 years of mobile installations were all wrong!

A vertical fed against ground is by definition a perfect match for coax.
There is no need to make it a 'balanced system'. If rf exists on the
coax there is a poor ground in the system that should be addressed and
solved.

890. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 01:20:50 UTC
From: anoldfart2@unlisted.com
Message-ID: <nujdt1psmir8vvusfj6dcsb3t84mrrkgbn@4ax.com>
Source record: 64952
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

On Tue, 24 Jan 2006 05:01:30 GMT, not_real@xxx.yyy (Beachcomber)
wrote:

>On 23 Jan 2006 19:16:13 -0800, "buffalobill" <wjohnston@adelphia.net>
>wrote:
>
>>TN climate may have rusted out your 300 ohm rooftop antenna, making
>>your old system low quality or possibly useful to a radio.
>>see hdtv antenna compass directions from entering just your zipcode at:
>>http://www.antennaweb.org/aw/Address.aspx
>>
>
>That old twin-lead cable reminds me of the setup in our city apartment
>building back in 1961. The twin-lead was connected directly to the
>back of the TV with screw terminals. Occasionally a wire would break
>and it would be necessary to re-attach it. The problem was how to
>strip it... The plastic dielectric was the most awful, stiff material
>around.
>
>Thankfully my father showed me the way. He lit it with a match and
>burned away the plastic from the bare copper wires. I still remember
>the drip drip of hot plastic and the nasty smell it produced.
>
>There weren't many stations, just the ABC, CBS, NBC and a struggling
>PBS affiliate that ran shows about "math lessons" for educational TV.
>There was also one big-city independent station that ran Laurel &
>Hardy, Abbott & Costello, the 3 stooges and some fine local children's
>programs.
>
>Every few months a tube on the set would go bad. Then we called the
>Zenith Repairman who brought no less than 3 giant tube caddies and
>filled up the living room with spare replacement tubes when the cases
>were open. Later, every drugstore had a tube-tester available and we
>could test and sometimes even replace our own tubes.
>
>Beachcomber
>

It really pisses me off that you cant find tube testers in drug stores
any longer. Whatever happened to "SERVICE". I finally had to buy my
own tube tester and now I have to test them alone in my own home. The
drugstore tube tester used to be a great place to pick up women,
particularly those who had broken tvs. It's no wonder there is so
much violence in today's society. People no longer have a place to

gather and test tubes. It was always a big thrill to watch them light up, and slowly watch that meter climb into the "GOOD" (green) zone. That was so much more exciting than all these boring computer games these kids play these days.

By the way, 300 ohm tv cable will still work if it's still properly attached to the antenna and the antenna is still intact. To splice it, strip it back about an inch on each piece. Twist the two wires and bend them down along side the cable. Wrap with tape. Connect to tv and see what happens. On newer tvs you will need an adaptor. A couple bucks at Radio Shack.

891. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 01:22:52 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1138152172.436140.49670@z14g2000cwz.googlegroups.com>
Source record: 64951

old friend,
As I understand your post, you have lost the use of your 6 meter beam and you would like to try a random wire antenna. And as I understand you say that you have a tuner which is capable of working with a random wire.

I would say go ahead and try it. But you can't leave the extra length of wire still wound on the spool. You'll have to make the sacrifice and go ahead and clip off a 50 ft. length or so.

Random wire antennas are not very common on 6 meters, but there's no reason it can't work.

I'm not sure what that inducer is that you intend to leave on one end.

John

892. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 02:16:21 UTC
From: AZ Woody <Reply@here.not.email>
Message-ID: <WbBBf.51$OO.2161@news.uswest.net>
Source record: 64953
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

Some matching transformers don't require the 300 ohm wire to be stripped at all. I don't know if they're still available, but basically, the flat cable went between two screws. The screws had a "star washer that was shaped like an inverted bowl. When the screws are tightened, the sharp part of the star washer would pierce the insulation on the cable and provide a connection to the inner wires.

```
-----0-----------------------------------------------------

cable
-----0-----------------------------------------------------

0=screw
```

893. RF Ammeter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 03:48:28 UTC
From: "Charles P.L. Stokes" <wb4pvt@verizon.net>
Message-ID: <gyCBf.8315$zh2.3545@trnddc01>
Source record: 64954

I'm looking for a RF Ammeter, are the MFJ's MFJ-834, MFJ-835, MFJ-854, and MFJ-853 meters any good? Two of the meters are in-line and two are clamp-on.

WB4PVT
Charlie

894. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 04:56:12 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehmgp04fwdc008@cnews.newsguy.com>
Source record: 64955
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Amos Keag wrote:

> I give up!! Obviously my 52 years of mobile installations were all
> wrong!
>
> A vertical fed against ground is by definition a perfect match for
> coax. There is no need to make it a 'balanced system'. If rf exists
> on the coax there is a poor ground in the system that should be
> addressed and solved.
~~~~~~

More likely you have had one year of experience 52 times.

Consider an eight foot center loaded whip on 80 meters. The feedpoint impedance of the whip is going to be very small - an ohm or two. Worked against an automobile chassis which, capacity coupled to the earth, will have an impedance of somewhere between 10-36 ohms, you will have major imbalance. No amount of "grounding" will improve the imbalance. In fact, just the opposite. The closer you come to the theoretical perfect 36 ohm ground, the worse the imbalance gets.

Now whether this is a problem in a particular installation is a different question, but the imbalance is there. The coax will have a large differential current flowing on the outside as a direct result of that imbalance. Some authors will tell you how important it is to ground the chassis of your transceiver to get rid of this current. Do that if you want, but I think it's better to keep that current away from your transceiver in the first place. A current-type choke at the whip's base will prevent that current from flowing and will keep it in the antenna and in the car's body where it belongs instead of on the outside of the coax. Done properly, your transceiver's chassis should have no RF on it to need grounding in the first place.

Bill, W6WRT
~~~~~~

895. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 05:44:18 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <JJWdnUFF2tOojUreRVn-sw@comcast.com>
Source record: 64956

Frank,

The antenna I am trying to model is a center 'loaded vertical'. It is a 4 inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a 4 inch tip. The material is Num 10 solid copper. I adjust the frequency by stretching or compressing the coil. Currently it is resonant at about 141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in frequency.

I have used both the vertload model and the EZNEC model. Both predict an antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference between forward and reverse. The antenna shows a 10 db power difference between forward and reverse.

Thanks - Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D64535.8000403@comcast.net...
>
>>Thanks. I have two coupler systems, one with very good directivity and one
>>with only moderate directivity. The antenna is resonant at about 141.6
>>MHz. There is a difference of about a couple of hundred kc between the
>>systems.
>>
>>Now on the the "R" measurements. Both systems indicate an antenna
>>resistance of over 30 Ohms. This antenna has been modeled with three
>>different models. They all indicate a Rr in the range of 5 Ohms. The
>>antenna is grounded by a 3 foot by 5 foot screen mesh. While this is not
>>infinite, it should provide a good ground. Do you have a suggestion of
>>where to look for the discrepancy?
>>
>>Dan
>
>
> Dan, the frequency difference is most likely caused by the poor directivity
> of one of your couplers, so would not worry about it. Just take the reading
> with the better coupler. The forward power coupled into the reverse port
> will cause a phase error.
>
> As for your modelling: what program are you using, and how do you describe
> the ground screen? I ran a quick model above a perfect ground -- using
> NEC2. According to my program the input impedance is 36 ohms at resonance.
> The radiation efficiency, with a copper conductor, is 99.6%, so the
> radiation resistance is obviously very close to 36 ohms. I can run a model
> with a ground screen, but would like to replicate your structure as close as

> possible. The actual height of my model monopole is 0.505 m (19.88"), and
> is resonant at 141.8 MHz.
>
> Frank
>
>

896. Re: Aluminum Free-standing Tower Wanted

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 07:38:51 UTC
From: Bob <none@thistime>
Message-ID: <-sOdnUULOayWtkrenZ2dnUVZ_sWdnZ2d@giganews.com>
Source record: 64957

Thanks all Bill.
"Bill Hall" <bhallc21@verizon.net> wrote in message
news:24pBf.8$AV.4@trnddc07...
> Also one more on Craigslist. Under For Sale. Jan. 16.2006 60 ft. Rohn (on
> the ground). $300.00 HTH
> Bill
> "Bob" <none@thistime> wrote in message
> news:0ZudnVCjE4GxAkjeRVn-qA@giganews.com...
>> In pick up range of North Texas.
>> eh54 at sbcglobal dot net
>>
>
>

897. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 07:55:39 UTC
From: an_old_friend <konstans@hotmail.com>
Message-ID: <1138175739.071083.52270@g49g2000cwa.googlegroups.com>
Source record: 64958

Litzendraht wrote:
> old friend,
> As I understand your post, you have lost the use of your 6 meter beam
> and you would like to try a random wire antenna. And as I understand
> you say that you have a tuner which is capable of working with a random
> wire.
>
> I would say go ahead and try it. But you can't leave the extra length
> of wire still wound on the spool. You'll have to make the sacrifice and
> go ahead and clip off a 50 ft. length or so.
>
> Random wire antennas are not very common on 6 meters, but there's no
> reason it can't work.
>
> I'm not sure what that inducer is that you intend to leave on one end.

the indcutor I was reffering wawould have been the spool of wire a or
or quater miles of wound wire surely would have a respectable
inductance

I would have rathe rleft it since the anttenna is most becuase I don't
try climbing over some raly icy surfaces is all

tahnk so advice
>
> John

898. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 10:18:49 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11tek4desq7uv56@corp.supernews.com>
Source record: 64959
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:
>
> More likely you have had one year of experience 52 times.
>
> Consider an eight foot center loaded whip on 80 meters. The feedpoint
> impedance of the whip is going to be very small - an ohm or two. Worked
> against an automobile chassis which, capacity coupled to the earth,
> will have an impedance of somewhere between 10-36 ohms, you will have
> major imbalance. No amount of "grounding" will improve the imbalance.
> In fact, just the opposite. The closer you come to the theoretical
> perfect 36 ohm ground, the worse the imbalance gets.

I don't understand this at all. What does antenna feedpoint impedance
have to do with imbalance?

> Now whether this is a problem in a particular installation is a
> different question, but the imbalance is there. The coax will have a
> large differential current flowing on the outside as a direct result of
> that imbalance.
> . . .

I know of two causes of current on the outside of a coax cable,
conduction and mutual coupling, and I think I understand the mechanisms
quite well. But neither has anything to do with the antenna feedpoint
impedance. Can you explain what the mechanism is for an impedance
mismatch to cause a current on the outside of the coax?

Roy Lewallen, W7EL

899. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 14:02:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <NxLBf.14148$_S7.3476@newssvr14.news.prodigy.com>
Source record: 64960
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:
> The coax will have a
> large differential current flowing on the outside as a direct result of
> that imbalance.

Bill, could you explain what you mean here? Where is the
second equal-magnitude/opposite-phase current flowing?
Through the vehicle chassis? Through the ground under
the chassis? Since the vehicle's counterpoise currents
are necessary for resonance, what good does it do to
choke the coax currents when the coax braid is connected
to the vehicle chassis at both ends?
--
73, Cecil http://www.qsl.net/w5dxp

900. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 14:25:23 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43d7899d_1@newsfeed.slurp.net>
Source record: 64961

"Reg Edwards"
> There are also, very common, 2 and 3-wire (3-phase) transmission lines
> which have smaller radiation resistances, but radiation resistances
> they DO have depending on conductor spacing.

Doesn't the term "radiation resistance" normally apply to a characteristic
of antennas -- not transmission lines?

RF

901. Antenna Counterpoise

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 15:01:45 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dr83so$4vo$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64962

I would like to know the input resistance, at resonance, of a
1/4-wavelength counterpoise, at a low height above a ground of known
conductivity.

It will require modelling on an NEC-type program which takes soil
conductivity and very low heights accurately into account. If there
is such a program!.

The counterpoise can be modelled as a low-height, Inverted-L antenna
with the vertical and horizontal sections totalling 1/4-wavelength.

Modelled at approximately -

2 MHz and 10 MHz.

With heights above ground approximately -

0.005, 0.1, 1.0 metres.

With wire diameter = 1.6 mm or 14 awg.

With ground resistivities -

50, 200, 1000 ohm-metres.
(20, 5, 1 milli-Siemens).

I am interested only in input resistance. Input reactance will be
small when near resonance. Input resistance will not change very much
in the vicinity of resonance. So obtaining exact resonance is not
necessary. I would be happy with resistance values accurate to within
15 or 20 percent.

If anyone has a suitable modelling program and the time to spare I
would be very grateful. Just one or two figures would be useful.

Reg, G4FGQ.

902. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 15:29:28 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehna2532k85007@cnews.newsguy.com>
Source record: 64963
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Roy Lewallen wrote:

> I know of two causes of current on the outside of a coax cable,
> conduction and mutual coupling, and I think I understand the
> mechanisms quite well. But neither has anything to do with the
> antenna feedpoint impedance. Can you explain what the mechanism is
> for an impedance mismatch to cause a current on the outside of the
> coax?
~~~~~~

The impedance mismatch I was talking about is between the halves of the antenna, not between the antenna and the coax. A mobile antenna with a typical center loaded whip operating on a relatively low frequency such as 80 or 40 meters is severely unbalanced in that respect. That does not mean it won't work or is inefficient or anything of the like. Only that it is unbalanced, much like a non-resonant long wire worked against ground.

Bill, W6WRT
~~~~~~

903. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 15:33:27 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehna5p37or6008@cnews.newsguy.com>
Source record: 64964
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Cecil Moore wrote:

> what good does it do to
> choke the coax currents when the coax braid is connected
> to the vehicle chassis at both ends?
~~~~~~

The coax braid may be connected to the chassis at the antenna end, but not at the transceiver end, and the result is often a "hot" chassis. Some "experts" advise to ground the chassis with a short, heavy conductor to cure the problem, but I feel it's better to keep such currents off the coax to begin with.

That does not mean such methods don't work or are inefficient. I have operated both ways and both ways work. I just prefer not trying to "ground" current which should not be there in the first place.

Bill, W6WRT
~~~~~~

904. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 16:19:51 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehnbeg4vb2p001@cnews.newsguy.com>
Source record: 64966
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:

> The coax braid may be connected to the chassis at the antenna end, but
> not at the transceiver end, and the result is often a "hot" chassis.
> Some "experts" advise to ground the chassis with a short, heavy
> conductor to cure the problem, but I feel it's better to keep such
> currents off the coax to begin with.
>
> That does not mean such methods don't work or are inefficient. I have
> operated both ways and both ways work. I just prefer not trying to
> "ground" current which should not be there in the first place.
>
> Bill, W6WRT
~~~~~~

It's not every day I post a followup to my own message, but it seems appropriate here.

If you would like to experiment with this, try operating 17 meter mobile. If your installation is like mine, the length of coax will be very close to 1/4 wave on 17 (about 13 feet) and the transceiver's chassis will be "hot" for RF. We all know about a 1/4 wave conductor grounded at one and what happens at the other end.

I believe - correct me if I'm wrong - that current on the outside of coax is not subject to the velocity factor issue because what's inside the coax is not involved. It's just like a piece of wire in this respect.

It would be interesting to try it with a 26 foot coax but I haven't gotten around to it yet. Most likely it would only be effective on the one band anyway, since 17 isn't harmonically related to any other HF band.

Bill, W6WRT
~~~~~~

905. Re: Connecting 16th century antenna wire to 21st century coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 16:52:24 UTC
From: bruno.lerer@gmail.com
Message-ID: <1138207943.986035.241520@g49g2000cwa.googlegroups.com>
Source record: 64968
Cross-posted to: alt.home.repair,comp.home.automation,sci.electronics.repair,rec.radio.amateur.antenna

I'm certain everyone is breathlessly awaiting a status report on this project, so here goes: As suggested, I bought an Xacto knife from the nearest Radio Shack; I rummaged and found somewhere a balun transformer. [As an aside, on the balun are inscribed the magic words "Sega Genesis"! If memory serves, that video game system was prevalent at the time dinosaurs still roamed the earth, although dinosaur and video game historians may quibble with the dating.]

I used the knife to strip about ½ inch of the twin lead wire and embarked on the mother of all kludges: I sort of connected the exposed twin lead wires to the input of the balun; connected an RG6 coax male-F to the female-F on the balun; connected the other male-F end of the cable to the coax input on a Radio Shack Accurian Over-the-Air HDTV ATSC tuner (now discontinued, but the best $90 I've ever spent); connected an S-video cable to the S-video out on the tuner and connected the other end to the S-video in on a Philips RF modulator (best $8 ever spent); connected yet another RG6 to the coax out on the RF modulator and the other end to the coax input on an old (about 15-20 year) RCA TV in the basement.

THEN! I turned on the ATSC tuner and the RF modulator and the TV, and set the TV on channel 3 - and every OTA HDTV station known to man (at least in my area - western Nassau County, Long Island), was there - loud and clear! (Well, not so loud - sharp-eyed readers may have noticed I didn't bother with the audio settings; this was just a test of the antenna and wire).

So thanks be given to the gods of unknown antenna manufacturers and to Belden - a 15-20 year old system is still working, with the flimsiest of setup and no amplifiers! The wonders of technology.

906. Re: Antenna Counterpoise

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 16:57:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <O5OBf.27883$PL5.16980@newssvr11.news.prodigy.com>
Source record: 64965

Reg Edwards wrote:

> I would like to know the input resistance, at resonance, of a
> 1/4-wavelength counterpoise, at a low height above a ground of known
> conductivity.

A physical 1/4 wavelength (234/f) counterpoise is not
resonant at low heights so you must be talking about
an electrical 1/4 wavelength? For a fixed length, the
resonant frequency will change with height.

Can EZNEC be used for some of the configurations?
For instance, given my ground description (0.005, 13)
set for EZNEC, a 62 foot dipole one foot above ground
has a feedpoint impedance of 97 ohms on 7.188 MHz. Would
that imply a radial impedance of 48.5 ohms? The same
dipole 0.1 foot above ground shows an impedance of
112 at 5.94 MHz.

It seems as the wire gets closer to ground, the feedpoint
virtual impedance increases because the forward and
reflected waves on the radial are attenuated by the
ground. This rise in impedance is sometimes separated
out as "ground-loss resistance".

Roy, can NEC4 be used to model an underground dipole?
--
73, Cecil http://www.qsl.net/w5dxp

907. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 17:02:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <SaOBf.27884$PL5.7140@newssvr11.news.prodigy.com>
Source record: 64967
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:
> I just prefer not trying to
> "ground" current which should not be there in the first place.

Wouldn't you still get RF burns if you touch the floating
transceiver chassis and anything "grounded" to the vehicle
chassis at the same time?
--
73, Cecil http://www.qsl.net/w5dxp

908. Re: Antenna Counterpoise

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 18:02:33 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ateft1ds2vrj71dsrbo2b3bk6vilhb56va@4ax.com>
Source record: 64969

On Wed, 25 Jan 2006 15:01:45 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>I would like to know the input resistance

C'Mon Punchinello,

(((***** for other readers, spoiler follows *****)))

Yet another troll. This is another facile introduction to how you
would do it yourself to prove all the nodding heads wrong.

Then you will rummage up an unzipped program and offer it as the last
word.

Then you will sneer at software users as troglodytes who cannot rub
two brain cells together to derive Lord Plushbottom's principles of
transmission loss off a cable being draped across the bottom of the
Atlantic.

Of course, I will leave you with the last 27 or 13 posts in rebuttal
as this will play out to its obvious conclusion.

73's
Richard Clark, KB7QHC

909. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 19:14:41 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1138216481.509702.327560@g14g2000cwa.googlegroups.com>
Source record: 64970

K7ITM wrote:
> Careful about assuming that a 1/4 wave stub will do the trick...
>
> To match a 50 ohm line to a 2500 ohm load using a shorted stub at the
> transmission line end and a section between the 50 ohm line and the
> 2500 ohm load requires (using sections shorter than 1/4 wave for each):
>
> 50 ohm stub & section: 8.2 degrees & 81.9 degrees
> 75 ohm: 8.3 & 82.1 degrees
> 100 ohm: 8.5 & 82.2 degrees
> 150 ohm: 9.0 & 82.6 degrees
> 200 ohm: 9.8 & 83.3 degrees
> 300 ohm: 15.0 & 85.7 degrees
> 350 ohm: 45 & 88.9 degrees
> 353.55 ohm: 90 & 90 degrees
>
> Note that the last on is the case of not using a stub (90 degree stub
> looks like an open circuit). The 1/4 wave line impedance should be
> sqrt(Zin*Zout).
>
> You can adjust the length to tune out reactance, too.
>
> But if you're matching resistive load to resistive line, the total
> length of the stub part and the series part will be longer than 1/4
> wave, and more so as the impedance of the stub and series part rise.
> You can't use this arrangement if the stub and series section
> impedances are higher than sqrt(Zin*Zout). SO--beware of spacing the
> two too far apart!
>
> Cheers,
> Tom

Thanks Tom this is the kind of info I need. Hacked a test antenna
together this morning usin chain fence top rail. Spacing i 8 inches for
the stub.Planed on tuning the length of the stub by adjusting a
shorting bar at the bottom so antenna was intentionaly made a little
long. Final length of the 3/4 wl part is adjusable too. Since it is
mounted to the house I figure with the help of friends we can lower
it, tweak it and have it back up again in 15 minutes or less. Probably
be the weekend before I can do more to it.

910. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 19:48:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CCQBf.36537$dW3.24862@newssvr21.news.prodigy.com>
Source record: 64971

JIMMIE wrote:
> I figure with the help of friends we can lower
> it, tweak it and have it back up again in 15 minutes or less. Probably
> be the weekend before I can do more to it.

You could get the same performance out of a center-fed
vertical dipole and do all your tweaking at the transceiver. :-)
--
73, Cecil http://www.qsl.net/w5dxp

911. Coax Cable, Connectors & Adapters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 21:02:06 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <ZGRBf.13120$sA3.5657@fed1read02>
Source record: 64972
Cross-posted to: rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.swap

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912. Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 21:25:50 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <y1SBf.755914$xm3.21213@attbi_s21>
Source record: 64973

My antenna is a Butternut HF6V vertical. This antenna is ground mounted and has 32 radials, which have been laid on top of the grass. The average length of the radials is about 30 feet. I operate primarily on 40 meters, and I seem to receive good signal reports.

Today, I ran into another operator on 40 meters, who told me that I would get a large signal improvement if I increased the number of radials from the current 32 to 100 or 120. In fact he said he had seen information on the SteppIR website (http://www.steppir.com/) that supported his assertion. Remembering how hard I had worked to install my existing 32 radials, I responded that the effect of quadrupling my radial count would probably give only a small increase in gain of less than one dB. Indeed Cebik's website (http://www.cebik.com/gp/gr.html) seems to support this view with a graphic titled "Radial Length vs. Number of Radials". If I am interpreting this graphic correctly, the gain increase from 32 radials to 128 radials is about 0.5 dB.

Any comments would be gratefully received.

John, N9JG

913. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 22:20:54 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <7rtft15r87o3fnepcu40ur4jc7e7sipekr@4ax.com>
Source record: 64974

On Wed, 25 Jan 2006 21:25:50 GMT, "John, N9JG"
<john@gotwals.XremoveY.com> wrote:

>If I am interpreting this graphic correctly, the gain increase
>from 32 radials to 128 radials is about 0.5 dB.

Hi John,

Well, if you read the site closely, there are far more variables
involved than one graph offers a final answer to.

On the other hand, if this graph accurately represents all those
variables converging on your conditions; then, yes, it is a huge
increase as reported. You can, on your next QSO offer to that
operator that it probably will boost your signal one half of an
S-meter needle's width.

73's
Richard Clark, KB7QHC

914. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 22:41:27 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <r8TBf.756002$xm3.570205@attbi_s21>
Source record: 64975

Well you always wonder if the guy was trolling me, but I wasn't about to plan on spending the spring putting in an additional 90 verticals unless there was the prospect of a reasonable payoff.
-- John

"Richard Clark" <kb7qhc@comcast.net> wrote in message news:7rtft15r87o3fnepcu40ur4jc7e7sipekr@4ax.com...
> On Wed, 25 Jan 2006 21:25:50 GMT, "John, N9JG"
> <john@gotwals.XremoveY.com> wrote:
>
>>If I am interpreting this graphic correctly, the gain increase
>>from 32 radials to 128 radials is about 0.5 dB.
>
> Hi John,
>
> Well, if you read the site closely, there are far more variables
> involved than one graph offers a final answer to.
>
> On the other hand, if this graph accurately represents all those
> variables converging on your conditions; then, yes, it is a huge
> increase as reported. You can, on your next QSO offer to that
> operator that it probably will boost your signal one half of an
> S-meter needle's width.
>
> 73's
> Richard Clark, KB7QHC

915. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 22:46:45 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <pdTBf.513451$084.293169@attbi_s22>
Source record: 64876

CORRECTION - I mean to write 90 radials rather than 90 verticals!!!

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:r8TBf.756002$xm3.570205@attbi_s21...
> Well you always wonder if the guy was trolling me, but I wasn't about to
> plan on spending the spring putting in an additional 90 verticals unless
> there was the prospect of a reasonable payoff.
> -- John
>
> "Richard Clark" <kb7qhc@comcast.net> wrote in message
> news:7rtft15r87o3fnepcu40ur4jc7e7sipekr@4ax.com...
>> On Wed, 25 Jan 2006 21:25:50 GMT, "John, N9JG"
>> <john@gotwals.XremoveY.com> wrote:
>>
>>>If I am interpreting this graphic correctly, the gain increase
>>>from 32 radials to 128 radials is about 0.5 dB.
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>> Hi John,
>>
>> Well, if you read the site closely, there are far more variables
>> involved than one graph offers a final answer to.
>>
>> On the other hand, if this graph accurately represents all those
>> variables converging on your conditions; then, yes, it is a huge
>> increase as reported. You can, on your next QSO offer to that
>> operator that it probably will boost your signal one half of an
>> S-meter needle's width.
>>
>> 73's
>> Richard Clark, KB7QHC
>
>

916. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-25 23:22:00 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <sKTBf.194780$OU5.165142@clgrps13>
Source record: 64877

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
> Frank,
>
> The antenna I am trying to model is a center 'loaded vertical'. It is a 4
> inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
> 4 inch tip. The material is Num 10 solid copper. I adjust the frequency by
> stretching or compressing the coil. Currently it is resonant at about
> 141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
> frequency.
>
> I have used both the vertload model and the EZNEC model. Both predict an
> antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
> between forward and reverse. The antenna shows a 10 db power difference
> between forward and reverse.
>
> Thanks - Dan

Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length from 0.8" to 1.6". The inductance values are 380 - 490 nH. An, approximately 9" long monopole, with a 5 turn helix appears to be resonant at about 190 MHz, with a highly reactive 6 ohm input impedance at 141 MHz. Using a lumped element simulation the required load inductance, for 141 MHz, is about 600 nH.

The only way to resolve these discrepancies is to do a standard single port network analyzer calibration and measure the actual input impedance of the antenna.

Frank

917. Re: Antenna Counterpoise

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 00:39:38 UTC
From: apropperwierdo@hotman.com
Message-ID: <eTUBf.110156$7p5.20327@newsfe4-win.ntli.net>
Source record: 64878

that's a bit mean, Reg is trying to help radio enthusiasts with his hard work, and mathematical problem solving skills, he is a good man to have in your tool box!
Some of us appreciate his hard work.

918. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 01:50:35 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D82AEB.1020009@comcast.net>
Source record: 64879

All,

Has anyone tried this successfully? If so what OS and level did you use? I tried, the installation went issue however attempts to execute the app result in an error: 50003.

Has anyone successfully gotten this to work?

Thanks - Dan

Arie wrote:
> For those still interested,
>
> I just released the new 5.6. version for the 4nec2 antenna modeling
> freeware, for which I created a much tighter interface with the
> ItsHF/VOACAP propagation prediction software. For more info see
> http://home.ict.nl/~arivoors/
>
> Greetings,
> Arie.
>

919. Re: Antenna Counterpoise

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 01:53:31 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <l9agt117trkuqil3cuj0b66llhvi8cmk3n@4ax.com>
Source record: 64880

On Thu, 26 Jan 2006 00:39:38 GMT, <apropperwierdo@hotman.com> wrote:

>that's a bit mean, Reg is trying to help radio enthusiasts with his hard
>work, and mathematical problem solving skills, he is a good man to have in
>your tool box!
>Some of us appreciate his hard work.

If you were a troglodyte that suffered his lamentations (is your IQ
higher than the orphans of Brazil, AKA the sewer rats of Rio?) you
might feel different. A touching commendation nonetheless, but
Punchinello can go 120 rounds without a Jerry Lewis telethon. You
give him far too little credit.

Perhaps if you
1. signed your gift card;
2. offered an example;
then this would make it by air mail.

73's
Richard Clark, KB7QHC

920. external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 02:14:14 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns9756B9C869CA9spectrumhogstarbandn@198.186.192.196>
Source record: 64881

Many laptops now-a-days have mini-pci wifi internal wifi cards for wireless internet. Laptops such as the IBM Thinkpad series apparently have an antenna built into the top of the display, which enhances wifi signal.

Does anyone have any idea what type of antenna is used? A neighbor has a wifi coverage problem and he says he measures a (DC) short circuit at the little coax coming from this built in antenna. I suspect this might be normal, but would like further opinion here. Thanks.

Ed K7AAT

921. Re: external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 02:30:08 UTC
From: dplatt@radagast.org
Message-ID: <11tgd1g2hb4s970@corp.supernews.com>
Source record: 64882

> Many laptops now-a-days have mini-pci wifi internal wifi cards for
>wireless internet. Laptops such as the IBM Thinkpad series apparently have
>an antenna built into the top of the display, which enhances wifi signal.
>
> Does anyone have any idea what type of antenna is used? A neighbor has
>a wifi coverage problem and he says he measures a (DC) short circuit at the
>little coax coming from this built in antenna. I suspect this might be
>normal, but would like further opinion here. Thanks.

I believe that some of them use an inverted-F configuration or
straight-F configuration, either printed right on the PC board or
mounted above it. My recollection (and brief Googling on the net)
suggest that such antennas use a shorted inductive stub as part of
their matching/tuning arrangement, and will thus look like a short
circuit at DC.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

922. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 03:14:14 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D83E86.3000708@comcast.net>
Source record: 64883

Frank,

I will re-measure the coil dimensions. The recall the coil measured 600nH. That is the value I used when I modeled this antenna using EZNec. It showed resonance at about 145 MHz and 12 Ohms. (That was using an average real ground.)

If I assume the antenna measurements are correct then is it the ground that accounts for the difference between 6 Ohms and the modeled 12 Ohms?

Now I am on to model and measure a center loaded dipole.

Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
>
>>Frank,
>>
>>The antenna I am trying to model is a center 'loaded vertical'. It is a 4
>>inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
>>4 inch tip. The material is Num 10 solid copper. I adjust the frequency by
>>stretching or compressing the coil. Currently it is resonant at about
>>141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
>>frequency.
>>
>>I have used both the vertload model and the EZNEC model. Both predict an
>>antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
>>between forward and reverse. The antenna shows a 10 db power difference
>>between forward and reverse.
>>
>>Thanks - Dan
>
>
> Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
> from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
> approximately 9" long monopole, with a 5 turn helix appears to be resonant
> at about 190 MHz, with a highly reactive 6 ohm input impedance at 141 MHz.
> Using a lumped element simulation the required load inductance, for 141 MHz,
> is about 600 nH.
>
> The only way to resolve these discrepancies is to do a standard single port
> network analyzer calibration and measure the actual input impedance of the
> antenna.
>
> Frank

>
>

923. Questions about Plane reflector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 04:19:04 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <Y4YBf.227213$V7.97684@news-server.bigpond.net.au>
Source record: 64884

I am "playing" with a plane reflector at 920 MHz.

The physical construction is a copper sheet as reflector (290mm x 240mm).

A single dipole is mounted in the centre vertically.
The dipole consists of 2 aluminium rods that are 6mm diameter and
the length between the tips is 123mm.

I seem to get a double dip of lowest SWR at 908MHz and again at 945 MHz
(I am not sure of exact SWR but it is closer to 1:1 than 2:1 - I set up
a SWR brodge and noted 1:1 level and 2:1 level using calibrated loads).

The design was scaled from Cebik's 432 MHz version. The calculated
length of the dipole should have been 134.8mm.

My questions are...
1. Why do I see a double dip in SWR instead of single dip
2. Why is the element length so short compared to calculated lenth (I
want antenna to operate at 920MHz)
3. Should I have a choke (Say 5 turns of the coax on a 10mm diamtere at
the feedpoint ?

Thanks in advance for any help.

(Just in case you are curious, I wanting to use the finished unit as a
reference antenna to compare antenna gains)

924. Missed information on plane antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 04:21:16 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <07YBf.227215$V7.136542@news-server.bigpond.net.au>
Source record: 64885

Opps, should have mentioned, dipole is set off from plane 56mm using
nylon insulators.

925. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 04:49:08 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <8xYBf.137614$km.87081@edtnps89>
Source record: 64886

Dan,

Be interested to see what the exact dimensions of the coil are. Anyway, it seems we have some agreement on the 600 nH value, although my physical NEC helix models do not agree based on my estimate of your coil dimensions. I understand that EZNec uses a "Minninec" ground, which allows antenna contact with a perfect ground, but uses actual ground parameters to analyze the reflections. I am not sure about this, but would assume from the point of view of the input impedance, that the ground would be considered perfect; and therefore lossless. I also noticed I had some borderline NEC warnings when attempting to construct a coil with #10 AWG, so sometimes had to resort to a much thinner conductor.

My models showed about 17 ohms at resonance when connected to a perfect ground. The only time I observed impedances as low as 6 ohms was far from resonance when the antenna was highly capacitive. Ideally I should construct a ground screen, but for the time being will consider a perfect ground.

A free space dipole might be easier to model, but I am curious to understand why there are discrepancies in the monopole modeling.

Frank

PS, be interested in any comments on my NEC code:

```
CM Loaded 2 m monopole
CE
GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
GM 100 0 0 0 0 0 0 4 000.051
GW 3 15 0.4 0 4 0.4 0 0 0.025
GS 0 0 0.025400
GE 1
GN 1
EX 0 3 15 00 1 0
LD 5 101 1 15 5.8001E7
LD 5 102 1 50 5.8001E7
LD 5 3 1 15 5.8001E7
FR 0 41 0 0 135 2
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43D83E86.3000708@comcast.net...
> Frank,
>

> I will re-measure the coil dimensions. The recall the coil measured 600nH.
> That is the value I used when I modeled this antenna using EZNec. It
> showed resonance at about 145 MHz and 12 Ohms. (That was using an average
> real ground.)
>
> If I assume the antenna measurements are correct then is it the ground
> that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
>
> Now I am on to model and measure a center loaded dipole.
>
> Dan
>
> Frank wrote:
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
>>
>>>Frank,
>>>
>>>The antenna I am trying to model is a center 'loaded vertical'. It is a 4
>>>inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
>>>4 inch tip. The material is Num 10 solid copper. I adjust the frequency
>>>by stretching or compressing the coil. Currently it is resonant at about
>>>141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
>>>frequency.
>>>
>>>I have used both the vertload model and the EZNEC model. Both predict an
>>>antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
>>>between forward and reverse. The antenna shows a 10 db power difference
>>>between forward and reverse.
>>>
>>>Thanks - Dan
>>
>>
>> Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
>> from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
>> approximately 9" long monopole, with a 5 turn helix appears to be
>> resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>> at 141 MHz. Using a lumped element simulation the required load
>> inductance, for 141 MHz, is about 600 nH.
>>
>> The only way to resolve these discrepancies is to do a standard single
>> port network analyzer calibration and measure the actual input impedance
>> of the antenna.
>>
>> Frank

926. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 05:09:32 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <gQYBf.137708$km.7580@edtnps89>
Source record: 64887

Dan, I just loaded version 5.6 on my Windows XP computer, and it seems to run fine. Also shows the NEC code, and the NEC output file. It can also implement the Sommerfeld/Norton ground model. Just miss double clicking a line of code to help with the card entry.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43D82AEB.1020009@comcast.net...
> All,
>
> Has anyone tried this successfully? If so what OS and level did you use? I
> tried, the installation went issue however attempts to execute the app
> result in an error: 50003.
>
> Has anyone successfully gotten this to work?
>
> Thanks - Dan
>
> Arie wrote:
>> For those still interested,
>>
>> I just released the new 5.6. version for the 4nec2 antenna modeling
>> freeware, for which I created a much tighter interface with the
>> ItsHF/VOACAP propagation prediction software. For more info see
>> http://home.ict.nl/~arivoors/
>>
>> Greetings,
>> Arie.
>>

927. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 05:51:25 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehnwq12xezs008@cnews.newsguy.com>
Source record: 64888
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Cecil Moore wrote:

>
> Wouldn't you still get RF burns if you touch the floating
> transceiver chassis and anything "grounded" to the vehicle
> chassis at the same time?
~~~~~~

If the transceiver chassis really is "floating", the answer is no.

Bill, W6WRT
~~~~~~

928. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 07:03:27 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1138259006.975410.228500@g49g2000cwa.googlegroups.com>
Source record: 64889

Thanks everyone for all the help, I am sincerely appreciative of the help and suggestions I have recived from the group. I am also aware that there are antennas that may seem to be better suited for the job but in my situation I think I have made the best choice.

929. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 07:46:15 UTC
From: Brian Howie <brian@nospam.demon.co.uk>
Message-ID: <PE1$1gAH5H2DFwWk@b-howie.demon.co.uk>
Source record: 64890

In message <43D82AEB.1020009@comcast.net>, dansawyeror
<dansawyeror@comcast.net> writes
>All,
>
>Has anyone tried this successfully? If so what OS and level did you
>use? I tried, the installation went issue however attempts to execute
>the app result in an error: 50003.
>
>Has anyone successfully gotten this to work?

It runs correctly under W2000 here.

Brian GM4DIJ
--
Brian Howie

930. I am a beginner, where find documentation to use antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 09:20:45 UTC
From: Donato Pace <donatopace@infinito.it>
Message-ID: <43d8946b$0$47915$4fafbaef@reader3.news.tin.it>
Source record: 64891

Can you hel me to find a documentation about antenna?

I want learn to realize them and make little experiment.

931. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 10:20:35 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11th8jlcskss9a5@corp.supernews.com>
Source record: 64892
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:
> Roy Lewallen wrote:
>
>
>>I know of two causes of current on the outside of a coax cable,
>>conduction and mutual coupling, and I think I understand the
>>mechanisms quite well. But neither has anything to do with the
>>antenna feedpoint impedance. Can you explain what the mechanism is
>>for an impedance mismatch to cause a current on the outside of the
>>coax?
>
> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
>
> The impedance mismatch I was talking about is between the halves of the
> antenna, not between the antenna and the coax. A mobile antenna with a
> typical center loaded whip operating on a relatively low frequency such
> as 80 or 40 meters is severely unbalanced in that respect. That does
> not mean it won't work or is inefficient or anything of the like. Only
> that it is unbalanced, much like a non-resonant long wire worked
> against ground.

Guess I don't understand what you mean by an impedance mismatch between halves of an antenna. Can you elaborate a bit, and how it causes current to get to the outside of the coax?

There's no reason a non-resonant long wire worked against ground should produce more current on the outside of a coax feedline than a resonant one. The conducted current on the outside of the coax is determined by the relative impedances to ground of the two available paths at the shield connection at the end of the coax. In the case of a grounded antenna, the ground system is one of the paths. The other is the outside of the coax. If the ground system is any good, its impedance is much lower than the outside of the coax, so very little current flows on the coax. Changing the "antenna" makes very little difference to the relationship between those paths, so it has very little effect on the current conducted to the outside of the feedline. You can find a more detailed explanation at http://eznec.com/Amateur/Articles/Baluns.pdf.

Roy Lewallen, W7EL

932. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 10:31:45 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11th98hnvm5paa9@corp.supernews.com>
Source record: 64893
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Bill Turner wrote:
> Cecil Moore wrote:
>
>
>>what good does it do to
>>choke the coax currents when the coax braid is connected
>>to the vehicle chassis at both ends?
>
> ~~~~~~
>
> The coax braid may be connected to the chassis at the antenna end, but
> not at the transceiver end, and the result is often a "hot" chassis.
> Some "experts" advise to ground the chassis with a short, heavy
> conductor to cure the problem, but I feel it's better to keep such
> currents off the coax to begin with.
>
> That does not mean such methods don't work or are inefficient. I have
> operated both ways and both ways work. I just prefer not trying to
> "ground" current which should not be there in the first place.

Unless you're using the shield strictly for electric field shielding at very low (like audio) frequencies, you should *always* connect the shield at both ends, with low inductance connections. Think of a rig with an SO-239 connector. There's current coming out of the center pin, and there's an equal amount flowing in the opposite direction on the inside of the shell part of the connector. And inside a coax, there are equal and opposite currents on the outside of the center conductor and the inside of the shield. If you connect a coax to the rig via a properly installed PL-259, all the current on the inside of the SO-239 shell ends up inside the coax shield, and all the current from the SO-239 center pin ends up on the coax center conductor. Both sets of conditions are satisfied, and there's no current left over to flow on the outside of the coax or the outside of the rig. But what happens if you cut the shield at the rig? Then the current on the inside of the SO-239 shell has nowhere to go but over the edge and over the outside of the rig. And the current on the inside of the coax shield flows over the edge of the coax and along its outside. Somehow there'll be a path between the two, by conduction or coupling -- otherwise the rig would see an infinite impedance and no current would flow at all. But you probably won't like the path the current takes. It'll cause radiation from whatever it flows on, and because of the path impedance, RF voltage drops will be created between the coax shield and the rig, and anything else in the path. You might be able to alter its path with "ground"

wires and such, but you'll have a lot of trouble controlling it, and it'll always be flowing somewhere besides where it should be -- on the inside of the coax.

Roy Lewallen, W7EL

933. Re: external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 10:43:37 UTC
From: apropperwierdo@hotman.com
Message-ID: <tJ1Cf.2603$343.2238@newsfe2-win.ntli.net>
Source record: 64894

Dave Platt, well I never... your sister Sarah, bit young for kids,,, nice though, in a whiny sort of way. Quick tip... leave a roller skate on the stairs to put Phil out of 'the picture for a while. I love seeing your mum Gail cry, such fun...

934. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 11:30:19 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138275019.217196.21700@g14g2000cwa.googlegroups.com>
Source record: 64895

dansawyeror wrote:

> Has anyone tried this successfully? If so what OS and level did you use? I
> tried, the installation went issue however attempts to execute the app result in
> an error: 50003.
>
> Has anyone successfully gotten this to work?

Yes numerous people did,.. at least previous versions.

I thought I did mention something about the OS capable of running 4nec2
on my website, but maybe I was not clear enough. On the other hand it's
alwaýs possible you trapped a yet unknow problem.

Concerning the operating systems, overhere I did test things on W-98,
W-me, W-XP and W-2000.

Sorry for the inconvenience,
Arie.

p.s. To get help editing the Nec2 or Nec4 cards, select the 'Nec
editor'on the settings menu or avoid all Nec related stuff and use the
drag and draw style editor.

935. Antenna booster amp

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 12:49:33 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dragh9$2ov$1@news-01.bur.connect.com.au>
Source record: 64896

Hi, i have a question about a Kingray masthead TV antenna Amp, the power supply feeds 22vac up to the amp. as far as i know, there should be no voltage showing on the tv side of the power supply. i tested 2 of these power supplies, one had 22v at the output to tv and to the antenna, other had 22vac to antenna and about 8vac to tv. both 22vac 150ma. Somehow i don't think either of them are any good. what do you people think?

Gary

936. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 15:11:44 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D8E6B0.2010204@comcast.net>
Source record: 64897

It seems to be the asycfilt.dll that is in error. What version of Win98 are you using? What is the size and date of asycfilt.dll please?

Thanks - Dan

Arie wrote:
> dansawyeror wrote:
>
>
>>Has anyone tried this successfully? If so what OS and level did you use? I
>>tried, the installation went issue however attempts to execute the app result in
>>an error: 50003.
>>
>>Has anyone successfully gotten this to work?
>
>
> Yes numerous people did,.. at least previous versions.
>
> I thought I did mention something about the OS capable of running 4nec2
> on my website, but maybe I was not clear enough. On the other hand it's
> alwaï¿½s possible you trapped a yet unknow problem.
>
> Concerning the operating systems, overhere I did test things on W-98,
> W-me, W-XP and W-2000.
>
> Sorry for the inconvenience,
> Arie.
>
> p.s. To get help editing the Nec2 or Nec4 cards, select the 'Nec
> editor'on the settings menu or avoid all Nec related stuff and use the
> drag and draw style editor.
>

937. Re: Antenna booster amp

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 15:19:47 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <op6dnT9nptbsdUXenZ2dnUVZ_sWdnZ2d@comcast.com>
Source record: 64898

"Gary Smith" <mygrps@aapt.net.au> wrote in message
news:dragh9$2ov$1@news-01.bur.connect.com.au...
> Hi, i have a question about a Kingray masthead TV antenna Amp, the power
> supply feeds 22vac up to the amp. as far as i know, there should be no
> voltage showing on the tv side of the power supply. i tested 2 of these
> power supplies, one had 22v at the output to tv and to the antenna, other
> had 22vac to antenna and about 8vac to tv. both 22vac 150ma. Somehow i
> don't think either of them are any good. what do you people think?
>
> Gary
>
>
If you have your heart set on using one of these amps, like for instance a
0.3db noise figure, get a DC block for the TV side. Other than that, it
sounds like it may be junk, and you would be better off with a
ChannelMaster.

Tam

938. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 16:52:14 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <277Cf.110589$AP5.60182@edtnps84>
Source record: 64899

p.s. To get help editing the Nec2 or Nec4 cards, select the 'Nec editor'on the settings menu or avoid all Nec related stuff and use the drag and draw style editor.

Arie, what I like about NEC are the NEC cards. I have been using NEC for so many years I feel lost without direct access to the deck. Anyway your comments are appreciated, and I guess I should read the help instructions.

You mention "Nec 4 cards". Do you actually support NEC 4? I plan to obtain a license for NEC 4 in the near future, and your interface looks interesting; The cost of GNEC from Nittany Scientific is a bit high, but thought it is probably the only way to run NEC 4 on a PC.

Frank

939. Re: external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 17:33:19 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <1s1it1dhc996aknrs1s3811ijurlt4jv8p@4ax.com>
Source record: 64901

On Thu, 26 Jan 2006 10:43:37 GMT, <apropperwierdo@hotman.com> wrote:

>Dave Platt, well I never... your sister Sarah, bit young for kids,,, nice
>though, in a whiny sort of way. Quick tip... leave a roller skate on the
>stairs to put Phil out of 'the picture for a while. I love seeing your mum
>Gail cry, such fun...

Hmmm, this in comparison to pleading for Reggie certainly removes you
from being considered the Vicar of Wakefield.

940. Re: I am a beginner, where find documentation to use antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 17:34:22 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <9PidnWnrrMmOlUTeRVn-jg@web-ster.com>
Source record: 64900

Donato Pace wrote:
> Can you hel me to find a documentation about antenna?
>
> I want learn to realize them and make little experiment.
>
>
In the US the ARRL has a lot of good books on antennas -- look on their web page (http://www.arrl.org) for information.

I gather from your English that you are from out of country. I don't know what will be available for you locally. You can probably get the ARRL books. If you cannot get them easily your country or another that shares the language may have a strong amateur radio organization with good books that you can get your hands on.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

941. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 21:11:08 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <MVaCf.227873$V7.171970@news-server.bigpond.net.au>
Source record: 64902

Can you advise where I can get wgnuplot ? The program complains that I
need this file
but I cannot locate it on your site.

Thanks

dansawyeror wrote:
> It seems to be the asycfilt.dll that is in error. What version of Win98
> are you using? What is the size and date of asycfilt.dll please?
>
> Thanks - Dan
>
> Arie wrote:
>> dansawyeror wrote:
>>
>>
>>> Has anyone tried this successfully? If so what OS and level did you
>>> use? I
>>> tried, the installation went issue however attempts to execute the
>>> app result in
>>> an error: 50003.
>>>
>>> Has anyone successfully gotten this to work?
>>
>>
>> Yes numerous people did,.. at least previous versions.
>>
>> I thought I did mention something about the OS capable of running 4nec2
>> on my website, but maybe I was not clear enough. On the other hand it's
>> alwaï¿½s possible you trapped a yet unknow problem.
>>
>> Concerning the operating systems, overhere I did test things on W-98,
>> W-me, W-XP and W-2000.
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>> Sorry for the inconvenience,
>> Arie.
>>
>> p.s. To get help editing the Nec2 or Nec4 cards, select the 'Nec
>> editor'on the settings menu or avoid all Nec related stuff and use the
>> drag and draw style editor.
>>

942. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 21:33:19 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <06KdnXmGUdGV3UTeRVn-uQ@comcast.com>
Source record: 64903
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Joe S." <anon@mous.com> wrote in message
news:HMudneUWRbBGn0nenZ2dnUVZ_tmdnZ2d@comcast.com...
> This question does not fit perfectly into any rec.radio.amateur newsgroup
> so I'll cross-post it to three groups and hope someone can help me.
>
> The question involves the dangers of RF energy from HF, VHF, and UHF rigs
> around automobile electronics.
>
> I am installing a Yaesu FT-857D in a 1997 Mazda B4000 truck -- 4.0L V6,
> 4WD, 5-speed, with extended cab.
>
> The control head for the 857 is separated and mounted on the plastic bezel
> around the gear shift lever. The rig is mounted on the floor under the
> driver's seat.
>
> Underneath the truck, on the rocker panel just beneath the seatbelt anchor
> point, is a factory-made hole in the floor. This hole is closed with a
> removable rubber plug. I ran the radio's power lead through this rubber
> plug, along the frame, into the engine compartment where I attached the
> positive lead to the battery and the negative lead to chassis ground.
>
> I planned to run the antenna leads out through the same hole then run them
> along the frame into the sidewall of the bed to the rear of the truck
> where I will mount a VHF/UHF antenna in one rear stake hole and an
> ATAS-120 in the other rear stake hole, using the GeoTools mount:
> http://www.geotool.com/antmount.htm
>
> I took the truck in for service last week and the service advisor gave me
> a long lecture about keeping the coax away from the air bag and away from
> the seatbelt retractor. He told me the retractor has a small explosive
> charge in it that can be set off by radiation from coax. Ditto for the
> airbag.
>
> The route I planned for the coax takes it right next to the seatbelt
> retractor and I am now re-thinking my installation. I could route the
> coax from underneath the driver's seat directly to the back of the cab and
> drill a hole in the floorboard, centered on the cab at the back wall of
> the cab, and run the coax out of that hole. This would get a foot or more
> separation between the coax and the retractor.
>
> I plan to ground the hell out of this installation.
> -- The power lead is grounded to the frame in the engine compartment.
> -- I have a 10 gauge pigtail -- one end will be bolted under one of the

> bolts that attaches the seat frame to the floorboard and the other end
> will be bolted to the 857 chassis.
> -- The antenna mounts bolt directly onto the chassis; I will sand off the
> paint and use star washers to get good contacts at these mounting points.
>
> Also, I will use double-shielded RG-8X for the coax.
>
> I see a lot of trucks like mine (the B4000 is the same truck as the Ford
> Ranger) with CB installations -- I have never stopped anyone and asked but
> it seems to me the normal CB installation is nowhere near as good as mine
> and they don't seem to have problems. Of course, I'm running 100 watts
> and they are running only 5 (right???).
>
> Has anyone out there had experience with HF mobile installations in the
> Mazda or Ranger pickups?
>
> Thanks for your assistance.
>

Thanks to all who replied -- I certainly appreciate everyone taking time to help me. Of course, as usually happens with newsgroups, the thread wandered somewhat from the original question -- which was how to route my coax and mount my rig so as to avoid firing the seat belt retractor.

I have solved the problem -- the dealer had a tech bulletin that told me to keep coax 12 inches from the retractor and to ground everything -- so -- I drilled a 1-inch diameter hole in the floor board under the driver's seat and installed a plastic plug in the hole. I drilled two 1/4-inch diameter holes in the plug through which I routed the coax -- one cable for HF, one for VHF/UHF. Grounded the negative power lead to the chassis in the engine compartment; grounded the rig (which is under the driver's seat) to the frame by loosening a seat mounting bolt and grounding one end of a pigtail to that bolt and the other end of the pigtail goes to the rig's chassis.

The stake hole mounts have mounting bolts in their bottoms. Remove the tail light assembly; drill a 5/8-inch hole in the bottom of the bracket in the stake hole; grind off the paint from around the hole with a Dremel tool; put star lock washers on the bolt that comes out the bottom of the stake hole mount and tighten the living shit out of the mounting bolt, thereby grounding the antenna mount to the chassis sheet metal. There are already factory-installed ground jumpers connecting the sheet metal to the frame.

Fired it up at full power and nothing bad happened; SWR looks good; ATAS-tunes normally; made a few contacts on HF, VHF, and UHF.

I'll post photos, etc., to my web site in a few days when I get it all cleaned up.

943. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 22:12:18 UTC
From: dplatt@radagast.org
Message-ID: <11tiia21u8voh0b@corp.supernews.com>
Source record: 64904
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

In article <06KdnXmGUdGV3UTeRVn-uQ@comcast.com>, Joe S. <anon@mous.com> wrote:

>I have solved the problem -- the dealer had a tech bulletin that told me to
>keep coax 12 inches from the retractor and to ground everything -- so -- I
>drilled a 1-inch diameter hole in the floor board under the driver's seat
>and installed a plastic plug in the hole. I drilled two 1/4-inch diameter
>holes in the plug through which I routed the coax -- one cable for HF, one
>for VHF/UHF. Grounded the negative power lead to the chassis in the engine
>compartment; grounded the rig (which is under the driver's seat) to the
>frame by loosening a seat mounting bolt and grounding one end of a pigtail
>to that bolt and the other end of the pigtail goes to the rig's chassis.

You'd be somewhat better off running the power-ground wire all the way
back to the battery, and connecting directly to the battery's negative
post. Include a fuse in this line just before it connects to the
battery negative.

Avoid using the body frame for high-current power supply ground
return. It's too easy for noise from other portions of the
electronics to get into your power, due to the non-zero resistance of
the shared ground path.

Clamping a couple of RF-suppression ferrites onto each coax at various
points along their runs might also help block, or dissipate, any RF
which does try to come back along the coax.

>The stake hole mounts have mounting bolts in their bottoms. Remove the tail
>light assembly; drill a 5/8-inch hole in the bottom of the bracket in the
>stake hole; grind off the paint from around the hole with a Dremel tool; put
>star lock washers on the bolt that comes out the bottom of the stake hole
>mount and tighten the living shit out of the mounting bolt, thereby
>grounding the antenna mount to the chassis sheet metal.

Adding a corrosion-preventive antioxidant paste or cream between the
chassis, washer, and bolt is a good idea, also. It'll help make sure
that infiltration of oxygen and moisture does not cause this critical
grounding junction to go high-Z in the future.

There are numerous such pastes/products on the market. The one I used
is a copper-loaded grease marketed by Butternut, under the cutesie
name "Butter-it's-not". You might be able to find an equally usable
copper-grease at a good auto-supply store.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior

I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

944. Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 22:13:53 UTC
From: Carsten Hjorth <carstenfjernhjorth@yahoo.dk>
Message-ID: <43d949a4$0$12401$ba624c82@nntp02.dk.telia.net>
Source record: 64905

Hello!

I just bought this: http://www.rustindustries.co.uk/remote.htm
The range is only 10-15 meters in free air, only 5-7 meters indoor.
Is it possible to connect a whip type antenna?
I have calculated a length ca 17 cm.
But i cannot see where to connect the antenna.
The transmitter has a loop style antenna, powered by one transistor and a
oscillator of some sort, i have drawn a schematic:
http://media.openbloc.com/1tpwr
I have tried to connect the antenna to the collector, but that gave me no
output at all.

Regards

Carsten Hjorth

945. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 22:35:23 UTC
From: dplatt@radagast.org
Message-ID: <11tijlbhdsju776@corp.supernews.com>
Source record: 64906

In article <43d949a4$0$12401$ba624c82@nntp02.dk.telia.net>,
Carsten Hjorth <carstenfjernhjorth@yahoo.dk> wrote:
>Hello!
>
>I just bought this: http://www.rustindustries.co.uk/remote.htm
>The range is only 10-15 meters in free air, only 5-7 meters indoor.
>Is it possible to connect a whip type antenna?
>I have calculated a length ca 17 cm.
>But i cannot see where to connect the antenna.
>The transmitter has a loop style antenna, powered by one transistor and a
>oscillator of some sort, i have drawn a schematic:
>http://media.openbloc.com/1tpwr
>I have tried to connect the antenna to the collector, but that gave me no
>output at all.

I looked at the design of a similar 433 MHz nonlicensed transmitter a
couple of months ago (it was for an IR-remote-to-RF repeater system).

It looked to me as if it was using the loop both as part of a tuned LC
tank circuit, and as the radiating element. I suspect that the same
is true of the circuit in your transmitter.

Adding a length of wire to it would very probably de-tune the tank
circuit. At best, it'd oscillate and transmit on the wrong frequency.
At worst, the wire loading would de-Q the tank to the point that it
wouldn't oscillate at all.

To boost the transmitter power or the antenna gain (if doing so is
even legal under your RF-use rules) would probably require a
significant redesign of the circuit.

In your situation, would it be adequate to boost the _receiver_ gain
instead? You can probably do anything you want, legally, to the
receiver... add a collinear antenna, change to a Yagi, use a corner
reflector, etc.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

946. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 23:31:16 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <8ZcCf.227987$V7.78956@news-server.bigpond.net.au>
Source record: 64907

What country are you in ?

The device is made in the UK and European EIRP limit should be 10mW.

We make low power transmitters at 433 and 915MHz and find we normally
get over 20m even with a resistor dummy load across the antenna terminal.

We made a transmitter in a plastic wristwatch that the oscillator
coupled directly into a loop antenna (you need to move the collector
connection along the loop till you get best match). This unit had
radiated power of around 100uW and still achieved 100m range.

Our 10mW units achieve over 1km line of sight outdoor range typically.
I cannot imagine a range of only 5-7m (unless the receiver is extremely
insensitive or the transmitter and receiver are not tuned to the same
frequency).

Dave Platt wrote:
> In article <43d949a4$0$12401$ba624c82@nntp02.dk.telia.net>,
> Carsten Hjorth <carstenfjernhjorth@yahoo.dk> wrote:
>> Hello!
>>
>> I just bought this: http://www.rustindustries.co.uk/remote.htm
>> The range is only 10-15 meters in free air, only 5-7 meters indoor.
>> Is it possible to connect a whip type antenna?
>> I have calculated a length ca 17 cm.
>> But i cannot see where to connect the antenna.
>> The transmitter has a loop style antenna, powered by one transistor and a
>> oscillator of some sort, i have drawn a schematic:
>> http://media.openbloc.com/1tpwr
>> I have tried to connect the antenna to the collector, but that gave me no
>> output at all.
>
> I looked at the design of a similar 433 MHz nonlicensed transmitter a
> couple of months ago (it was for an IR-remote-to-RF repeater system).
>
> It looked to me as if it was using the loop both as part of a tuned LC
> tank circuit, and as the radiating element. I suspect that the same
> is true of the circuit in your transmitter.
>
> Adding a length of wire to it would very probably de-tune the tank
> circuit. At best, it'd oscillate and transmit on the wrong frequency.
> At worst, the wire loading would de-Q the tank to the point that it
> wouldn't oscillate at all.
>
> To boost the transmitter power or the antenna gain (if doing so is

> even legal under your RF-use rules) would probably require a
> significant redesign of the circuit.
>
> In your situation, would it be adequate to boost the _receiver_ gain
> instead? You can probably do anything you want, legally, to the
> receiver... add a collinear antenna, change to a Yagi, use a corner
> reflector, etc.
>

947. Re: external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 23:34:27 UTC
From: apropperwierdo@hotman.com
Message-ID: <70dCf.68272$W4.38284@newsfe4-gui.ntli.net>
Source record: 64908

a proper weirdo!

948. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-26 23:44:01 UTC
From: apropperwierdo@hotman.com
Message-ID: <59dCf.67758$Dg6.32224@newsfe3-gui.ntli.net>
Source record: 64909

We make low power transmitters at 433 and 915MHz and find we normally
get over 20m even with a resistor dummy load across the antenna terminal.

got a link?

949. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 00:02:13 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <9qdCf.228022$V7.207343@news-server.bigpond.net.au>
Source record: 64910

www.orbitcoms.com

We have a lot more in development that is not on the site yet so feel
free to email us if you are looking for something - we may have it but
not yet posted the details.

apropperwierdo@hotman.com wrote:
> We make low power transmitters at 433 and 915MHz and find we normally
> get over 20m even with a resistor dummy load across the antenna terminal.
>
>
> got a link?
>
>

950. Re: external wifi antennas in laptops

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 00:56:45 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <pirit1lqbgs5ba04tqnh4qp19750jj310t@4ax.com>
Source record: 64911

On Thu, 26 Jan 2006 23:34:27 GMT, <apropperwierdo@hotman.com> wrote:
>a proper weirdo!

More so mildly eccentric (with Reggie eclipsing mild).

From Johnson on blockheads:

"he is a tree that cannot produce good fruit:
he only bears crabs. But, Sir, a tree that
produces a great many crabs is better than
a tree which produces only a few."

951. Re: How to earn money with PAYPAL!!!! 37

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 01:18:51 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43d974fb$0$33682$39cecf19@news.twtelecom.net>
Source record: 64912
Cross-posted to:
rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx

hhc314@yahoo.com wrote:
> Same here Cecil.
>
> The young kids don't have a clue about Social Security, because it
> isn't important to them at their time in life, nor was it for me when I
> was 25. None of us ever thought that we would live to see 65, hence it
> was just like income tax, something that you simply had to pay.
>
> The problem is not for us elders, but for the younger people who will
> hopefully someday reach 65. Today, most of these kids don't realize is
> that the fault with the Social Security system is not in its basic
> design, but what I beleve is called SSI that allows anyone regardless
> of age to claim benefits unser Social Security by claiming some form of
> disability, even if they have never contributed to the system.
>
> Just as an example, when I went to the Social Security office to claim
> my earned beneits, I was the only American present in the waiting area
> containing roughly 30 applicants. Most of these individuals were there
> seeking SSI benefits, few were American citizens, and most had never
> paid a dime into the system. This is precisely the problem that Social
> Security faces.
>
> No wonder Social Security is in trouble. It is comparable to a
> corporation that pays dividends to people that don't even own stock in
> the company!
>
> 'Nuff said on that subject.
>
> Curmudgeonly yours, Harry C.
>

Social Security is in trouble because when they figured the original
numbers, the average person lived to 65, so the government thought they
would, more or less, never really have to pay anything significant out.
That changed due to decent medical science, as most people in this
group (rraa is where I am right now) are more than aware.

Social Security has been busted for more than a couple decades, and none
of the bastards in the Senate or Congress or the Administration have had
the balls to let it just disappear. It is a dinosaur. And please note
I never mentioned a party here, since all are guilty of just covering
their asses just to get through another term.

And, at 52, I am one of the people that's going to lose evcerything that the government stole from me and gave away in this deal, so don't start ripping me for not caring.

Tom
K0TAR

952. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 01:36:35 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <q-WdnX9rFfCR5ETenZ2dnUVZ_t6dnZ2d@comcast.com>
Source record: 64913
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Dave Platt" <dplatt@radagast.org> wrote in message
news:11tiia21u8voh0b@corp.supernews.com...
> In article <06KdnXmGUdGV3UTeRVn-uQ@comcast.com>, Joe S. <anon@mous.com>
> wrote:
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>>I have solved the problem -- the dealer had a tech bulletin that told me
>>to
>>keep coax 12 inches from the retractor and to ground everything -- so -- I
>>drilled a 1-inch diameter hole in the floor board under the driver's seat
>>and installed a plastic plug in the hole. I drilled two 1/4-inch diameter
>>holes in the plug through which I routed the coax -- one cable for HF, one
>>for VHF/UHF. Grounded the negative power lead to the chassis in the
>>engine
>>compartment; grounded the rig (which is under the driver's seat) to the
>>frame by loosening a seat mounting bolt and grounding one end of a pigtail
>>to that bolt and the other end of the pigtail goes to the rig's chassis.
>
> You'd be somewhat better off running the power-ground wire all the way
> back to the battery, and connecting directly to the battery's negative
> post. Include a fuse in this line just before it connects to the
> battery negative.
>
> Avoid using the body frame for high-current power supply ground
> return. It's too easy for noise from other portions of the
> electronics to get into your power, due to the non-zero resistance of
> the shared ground path.
>
> Clamping a couple of RF-suppression ferrites onto each coax at various
> points along their runs might also help block, or dissipate, any RF
> which does try to come back along the coax.
>
>>The stake hole mounts have mounting bolts in their bottoms. Remove the
>>tail
>>light assembly; drill a 5/8-inch hole in the bottom of the bracket in the
>>stake hole; grind off the paint from around the hole with a Dremel tool;
>>put
>>star lock washers on the bolt that comes out the bottom of the stake hole
>>mount and tighten the living shit out of the mounting bolt, thereby
>>grounding the antenna mount to the chassis sheet metal.
>
> Adding a corrosion-preventive antioxidant paste or cream between the
> chassis, washer, and bolt is a good idea, also. It'll help make sure
> that infiltration of oxygen and moisture does not cause this critical

> grounding junction to go high-Z in the future.
>
> There are numerous such pastes/products on the market. The one I used
> is a copper-loaded grease marketed by Butternut, under the cutesie
> name "Butter-it's-not". You might be able to find an equally usable
> copper-grease at a good auto-supply store.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

Thanks. I'll do all of that. I can pick up ferrites at Radio Shack and should be able to find the anti-oxidant paste at local auto parts place. In fact, local auto parts has big ferrites -- they sell them as noise suppressors for audio installations.

953. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 02:00:12 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D97EAC.30603@comcast.net>
Source record: 64914

The error has been found, somehow my copy of a dll was corrupted. It now loads.
I am looking forward to using it.

dansawyeror wrote:
> All,
>
> Has anyone tried this successfully? If so what OS and level did you use?
> I tried, the installation went issue however attempts to execute the app
> result in an error: 50003.
>
> Has anyone successfully gotten this to work?
>
> Thanks - Dan
>
> Arie wrote:
>
>> For those still interested,
>>
>> I just released the new 5.6. version for the 4nec2 antenna modeling
>> freeware, for which I created a much tighter interface with the
>> ItsHF/VOACAP propagation prediction software. For more info see
>> http://home.ict.nl/~arivoors/
>>
>> Greetings,
>> Arie.
>>

954. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 04:10:14 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehp8p11ylq9000@cnews.newsguy.com>
Source record: 64915
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Roy Lewallen wrote:

> > > The coax braid may be connected to the chassis at the antenna
> > > end, but
> > not at the transceiver end, and the result is often a "hot" chassis.
~~~~~~

I could have worded that better. I meant that the coax is connected to the transceiver chassis but the transceiver's chassis is not connected to the car's chassis directly. I see why some folks took it to mean the coax braid at the transceiver isn't connected to anything.

Sorry for the confusion.

Bill, W6WRT
~~~~~~

955. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 04:49:16 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <dqudnf1CKKaiOETenZ2dnUVZ_vidnZ2d@adelphia.com>
Source record: 64916
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

Dave Platt wrote:

> You'd be somewhat better off running the power-ground wire all the way
> back to the battery, and connecting directly to the battery's negative
> post. Include a fuse in this line just before it connects to the
> battery negative.
(snip)

Why would that be the best arrangement? No steady state power comes
from the battery. If you want the least voltage drop, you take a pair
of wires back to the alternator, where the power originates. The
only advantage of the battery connection might be lower alternator
rectifier noise in the power, but that is pretty easy to filter out
right at the alternator, before it gets out in the wiring harness and
into the antenna.

956. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 05:18:03 UTC
From: Phil Kane <Phil.Kane@nov.shmovz.ka.pop>
Message-ID: <cuvyxnansvbet.itqbq31.pminews@newsgroups.comcast.net>
Source record: 64917
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

On Thu, 26 Jan 2006 23:49:16 -0500, John Popelish wrote:

>No steady state power comes
>from the battery. If you want the least voltage drop, you take a pair
>of wires back to the alternator, where the power originates.

HUH???? I've designed enough communication site power
installations to know that the battery powers the equipment and the
function of the alternator in a vehicle or the rectifier (power
supply, in ham language) in a fixed intsallation is to recharge the
battery "on the fly", so to speak. The current capacity of the
battery is much greater than that os the charging device.

Any design that puts the load on the charging device rather than on
the battery would be rejected out of hand. At best. both of them
would be connectable (through switches or circuit breakers) to the
load bus, with separate metering for the battery, the charger, and
the load.

In your scheme the equipment would get no power when the alternator
is not operating, or more clearly, if the equipment DOES get power,
the power must be coming from the battery.

Think about it.

--
73 de K2ASP - Phil Kane P.E.

957. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 05:33:02 UTC
From: dplatt@radagast.org
Message-ID: <11tjc4ef0sh65de@corp.supernews.com>
Source record: 64918
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

In article <dqudnf1CKKaiOETenZ2dnUVZ_vidnZ2d@adelphia.com>,
John Popelish <jpopelish@rica.net> wrote:
>Dave Platt wrote:
>
>> You'd be somewhat better off running the power-ground wire all the way
>> back to the battery, and connecting directly to the battery's negative
>> post. Include a fuse in this line just before it connects to the
>> battery negative.

>Why would that be the best arrangement? No steady state power comes
>from the battery. If you want the least voltage drop, you take a pair
>of wires back to the alternator, where the power originates. The
>only advantage of the battery connection might be lower alternator
>rectifier noise in the power, but that is pretty easy to filter out
>right at the alternator, before it gets out in the wiring harness and
>into the antenna.

I've never heard of anyone hooking up auxiliary loads right at the
alternator. I can imagine somebody hooking a secondary-battery feed
at this point (in an RV, perhaps) but I don't think I've ever seen
radios hooked up there.

I rather strongly suspect that you'd find the amount of "alternator
whine" in the audio to be significant greater if you hook up the radio
right at the alternator.

Every mobile-ham-radio installation guide I've ever read (including
the owners' manuals) seems to recommend running heavy wires back to
the battery.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

958. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 05:37:22 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D9B192.6010101@comcast.net>
Source record: 64919

Frank,

I will take the coil measurements.

Into which model programs can this description be loaded? Is there a 'howto'. I looked on how to dump my model from EZNec and could not find it.

Dan

Frank wrote:
> Dan,
>
> Be interested to see what the exact dimensions of the coil are. Anyway, it
> seems we have some agreement on the 600 nH value, although my physical NEC
> helix models do not agree based on my estimate of your coil dimensions. I
> understand that EZNec uses a "Minninec" ground, which allows antenna contact
> with a perfect ground, but uses actual ground parameters to analyze the
> reflections. I am not sure about this, but would assume from the point of
> view of the input impedance, that the ground would be considered perfect;
> and therefore lossless. I also noticed I had some borderline NEC warnings
> when attempting to construct a coil with #10 AWG, so sometimes had to resort
> to a much thinner conductor.
>
> My models showed about 17 ohms at resonance when connected to a perfect
> ground. The only time I observed impedances as low as 6 ohms was far from
> resonance when the antenna was highly capacitive. Ideally I should
> construct a ground screen, but for the time being will consider a perfect
> ground.
>
> A free space dipole might be easier to model, but I am curious to understand
> why there are discrepancies in the monopole modeling.
>
> Frank
>
> PS, be interested in any comments on my NEC code:
>
> CM Loaded 2 m monopole
> CE
> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
> GM 100 0 0 0 0 0 0 4 000.051
> GW 3 15 0.4 0 4 0.4 0 0 0.025
> GS 0 0 0.025400
> GE 1
> GN 1

> EX 0 3 15 00 1 0
> LD 5 101 1 15 5.8001E7
> LD 5 102 1 50 5.8001E7
> LD 5 3 1 15 5.8001E7
> FR 0 41 0 0 135 2
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D83E86.3000708@comcast.net...
>
>>Frank,
>>
>>I will re-measure the coil dimensions. The recall the coil measured 600nH.
>>That is the value I used when I modeled this antenna using EZNec. It
>>showed resonance at about 145 MHz and 12 Ohms. (That was using an average
>>real ground.)
>>
>>If I assume the antenna measurements are correct then is it the ground
>>that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
>>
>>Now I am on to model and measure a center loaded dipole.
>>
>>Dan
>>
>>Frank wrote:
>>
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
>>>
>>>
>>>>Frank,
>>>>
>>>>The antenna I am trying to model is a center 'loaded vertical'. It is a 4
>>>>inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
>>>>4 inch tip. The material is Num 10 solid copper. I adjust the frequency
>>>>by stretching or compressing the coil. Currently it is resonant at about
>>>>141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
>>>>frequency.
>>>>
>>>>I have used both the vertload model and the EZNEC model. Both predict an
>>>>antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
>>>>between forward and reverse. The antenna shows a 10 db power difference
>>>>between forward and reverse.
>>>>
>>>>Thanks - Dan
>>>
>>>
>>>Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
>>>from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
>>>approximately 9" long monopole, with a 5 turn helix appears to be

>>>resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>>>at 141 MHz. Using a lumped element simulation the required load
>>>inductance, for 141 MHz, is about 600 nH.
>>>
>>>The only way to resolve these discrepancies is to do a standard single
>>>port network analyzer calibration and measure the actual input impedance
>>>of the antenna.
>>>
>>>Frank
>
>
>

959. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 05:37:38 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D9B1A2.1080402@comcast.net>
Source record: 64920

Frank,

I will take the coil measurements.

Into which model programs can this description be loaded? Is there a 'howto'. I looked on how to dump my model from EZNec and could not find it.

Dan

Frank wrote:
> Dan,
>
> Be interested to see what the exact dimensions of the coil are. Anyway, it
> seems we have some agreement on the 600 nH value, although my physical NEC
> helix models do not agree based on my estimate of your coil dimensions. I
> understand that EZNec uses a "Minninec" ground, which allows antenna contact
> with a perfect ground, but uses actual ground parameters to analyze the
> reflections. I am not sure about this, but would assume from the point of
> view of the input impedance, that the ground would be considered perfect;
> and therefore lossless. I also noticed I had some borderline NEC warnings
> when attempting to construct a coil with #10 AWG, so sometimes had to resort
> to a much thinner conductor.
>
> My models showed about 17 ohms at resonance when connected to a perfect
> ground. The only time I observed impedances as low as 6 ohms was far from
> resonance when the antenna was highly capacitive. Ideally I should
> construct a ground screen, but for the time being will consider a perfect
> ground.
>
> A free space dipole might be easier to model, but I am curious to understand
> why there are discrepancies in the monopole modeling.
>
> Frank
>
> PS, be interested in any comments on my NEC code:
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> CM Loaded 2 m monopole
> CE
> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
> GM 100 0 0 0 0 0 0 4 000.051
> GW 3 15 0.4 0 4 0.4 0 0 0.025
> GS 0 0 0.025400
> GE 1
> GN 1

> EX 0 3 15 00 1 0
> LD 5 101 1 15 5.8001E7
> LD 5 102 1 50 5.8001E7
> LD 5 3 1 15 5.8001E7
> FR 0 41 0 0 135 2
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D83E86.3000708@comcast.net...
>
>>Frank,
>>
>>I will re-measure the coil dimensions. The recall the coil measured 600nH.
>>That is the value I used when I modeled this antenna using EZNec. It
>>showed resonance at about 145 MHz and 12 Ohms. (That was using an average
>>real ground.)
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>>If I assume the antenna measurements are correct then is it the ground
>>that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
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>>Now I am on to model and measure a center loaded dipole.
>>
>>Dan
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>>Frank wrote:
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>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
>>>
>>>
>>>>Frank,
>>>>
>>>>The antenna I am trying to model is a center 'loaded vertical'. It is a 4
>>>>inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
>>>>4 inch tip. The material is Num 10 solid copper. I adjust the frequency
>>>>by stretching or compressing the coil. Currently it is resonant at about
>>>>141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
>>>>frequency.
>>>>
>>>>I have used both the vertload model and the EZNEC model. Both predict an
>>>>antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
>>>>between forward and reverse. The antenna shows a 10 db power difference
>>>>between forward and reverse.
>>>>
>>>>Thanks - Dan
>>>
>>>
>>>Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
>>>from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
>>>approximately 9" long monopole, with a 5 turn helix appears to be

>>>resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>>>at 141 MHz. Using a lumped element simulation the required load
>>>inductance, for 141 MHz, is about 600 nH.
>>>
>>>The only way to resolve these discrepancies is to do a standard single
>>>port network analyzer calibration and measure the actual input impedance
>>>of the antenna.
>>>
>>>Frank
>
>
>

960. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 05:53:31 UTC
From: CLFE <Junkmail@clfurent.com>
Message-ID: <43d9b779$0$25084$ecde5a14@news.coretel.net>
Source record: 64921
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Dave Platt" <dplatt@radagast.org> wrote in message
news:11tjc4ef0sh65de@corp.supernews.com...
> In article <dqudnf1CKKaiOETenZ2dnUVZ_vidnZ2d@adelphia.com>,
> John Popelish <jpopelish@rica.net> wrote:
>>Dave Platt wrote:
>>
>>> You'd be somewhat better off running the power-ground wire all the way
>>> back to the battery, and connecting directly to the battery's negative
>>> post. Include a fuse in this line just before it connects to the
>>> battery negative.
>
>>Why would that be the best arrangement? No steady state power comes
>>from the battery. If you want the least voltage drop, you take a pair
>>of wires back to the alternator, where the power originates. The
>>only advantage of the battery connection might be lower alternator
>>rectifier noise in the power, but that is pretty easy to filter out
>>right at the alternator, before it gets out in the wiring harness and
>>into the antenna.
>
> I've never heard of anyone hooking up auxiliary loads right at the
> alternator. I can imagine somebody hooking a secondary-battery feed
> at this point (in an RV, perhaps) but I don't think I've ever seen
> radios hooked up there.
>
> I rather strongly suspect that you'd find the amount of "alternator
> whine" in the audio to be significant greater if you hook up the radio
> right at the alternator.
>
> Every mobile-ham-radio installation guide I've ever read (including
> the owners' manuals) seems to recommend running heavy wires back to
> the battery.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

I have yet to see "any" manual which suggests going to the "Alternator" for
voltage to run a radio, be it Ham, CB, or Two Way or even just electronics
books which may touch the subject of wiring radios or anything else for that
matter - into vehicles. I don't know where this guy read his information,
I'd love to know where the idea came from. My gosh, the whine is bad enough

sometimes at the battery, let alone the Alternator - the mother of it. Most suggestions are to fuse both the positive and negative leads on the radio (going to the battery) - although you can get away often - with grounding the negative and fusing the positive to the battery (for best results) OR to some point to feed the 12 volts if the current supply is ample - ie the cigarette lighter or some other place people tend to use. "I" don't suggest that, but people do use them..... Of course - the latter would be for smaller hand held CBs or the like. Anything larger, you're pretty much left with only the Battery.

CLF

961. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 06:03:36 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43D9B7B8.7070004@comcast.net>
Source record: 64922

I tried to run the nec in 4nec2. It produces and error"

"ITS GM card (x,y) not supported in nec2 engine"

Which model are you using? Do you know the source of this error?

Thanks - Dan

Frank wrote:
> Dan,
>
> Be interested to see what the exact dimensions of the coil are. Anyway, it
> seems we have some agreement on the 600 nH value, although my physical NEC
> helix models do not agree based on my estimate of your coil dimensions. I
> understand that EZNec uses a "Minninec" ground, which allows antenna contact
> with a perfect ground, but uses actual ground parameters to analyze the
> reflections. I am not sure about this, but would assume from the point of
> view of the input impedance, that the ground would be considered perfect;
> and therefore lossless. I also noticed I had some borderline NEC warnings
> when attempting to construct a coil with #10 AWG, so sometimes had to resort
> to a much thinner conductor.
>
> My models showed about 17 ohms at resonance when connected to a perfect
> ground. The only time I observed impedances as low as 6 ohms was far from
> resonance when the antenna was highly capacitive. Ideally I should
> construct a ground screen, but for the time being will consider a perfect
> ground.
>
> A free space dipole might be easier to model, but I am curious to understand
> why there are discrepancies in the monopole modeling.
>
> Frank
>
> PS, be interested in any comments on my NEC code:
>
> CM Loaded 2 m monopole
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> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
> GM 100 0 0 0 0 0 0 4 000.051
> GW 3 15 0.4 0 4 0.4 0 0 0.025
> GS 0 0 0.025400
> GE 1
> GN 1
> EX 0 3 15 00 1 0

> LD 5 101 1 15 5.8001E7
> LD 5 102 1 50 5.8001E7
> LD 5 3 1 15 5.8001E7
> FR 0 41 0 0 135 2
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43D83E86.3000708@comcast.net...
>
>>Frank,
>>
>>I will re-measure the coil dimensions. The recall the coil measured 600nH.
>>That is the value I used when I modeled this antenna using EZNec. It
>>showed resonance at about 145 MHz and 12 Ohms. (That was using an average
>>real ground.)
>>
>>If I assume the antenna measurements are correct then is it the ground
>>that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
>>
>>Now I am on to model and measure a center loaded dipole.
>>
>>Dan
>>
>>Frank wrote:
>>
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
>>>
>>>
>>>>Frank,
>>>>
>>>>The antenna I am trying to model is a center 'loaded vertical'. It is a 4
>>>>inch base, 5 turns at 40 percent spacing on a .8 diameter inch form and a
>>>>4 inch tip. The material is Num 10 solid copper. I adjust the frequency
>>>>by stretching or compressing the coil. Currently it is resonant at about
>>>>141.7 Mhz. The 8405a shows a phase shift of 1 degree per 30 kc change in
>>>>frequency.
>>>>
>>>>I have used both the vertload model and the EZNEC model. Both predict an
>>>>antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power difference
>>>>between forward and reverse. The antenna shows a 10 db power difference
>>>>between forward and reverse.
>>>>
>>>>Thanks - Dan
>>>
>>>
>>>Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
>>>from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
>>>approximately 9" long monopole, with a 5 turn helix appears to be
>>>resonant at about 190 MHz, with a highly reactive 6 ohm input impedance

>>>at 141 MHz. Using a lumped element simulation the required load
>>>inductance, for 141 MHz, is about 600 nH.
>>>
>>>The only way to resolve these discrepancies is to do a standard single
>>>port network analyzer calibration and measure the actual input impedance
>>>of the antenna.
>>>
>>>Frank
>
>
>

962. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 06:36:08 UTC
From: dplatt@radagast.org
Message-ID: <11tjfqono5nrg8a@corp.supernews.com>
Source record: 64923
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

In article <43d9b779$0$25084$ecde5a14@news.coretel.net>,
CLFE <Junkmail@clfurent.com> wrote:

> Most
>suggestions are to fuse both the positive and negative leads on the radio
>(going to the battery) - although you can get away often - with grounding
>the negative and fusing the positive to the battery (for best results)

I don't recommend fusing only the hot side. Fuse both. It's safer.

Fusing the ground wire protects you against wiring faults. Consider
what would happen if you don't do this, and your radio's chassis is
grounded to the vehicle frame, and if the main grounding strap from
the alternator to the battery comes loose at the battery end. Your
rig's chassis, and its ground wire could end up being a major part of
the ground-return current from the alternator to the battery. The
ground wire may not be able to handle that much current, and might
overheat or catch fire. If it's properly fused, the fuse will blow.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

963. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 06:45:20 UTC
From: CLFE <Junkmail@clfurent.com>
Message-ID: <43d9c17f$0$25087$ecde5a14@news.coretel.net>
Source record: 64924
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Dave Platt" <dplatt@radagast.org> wrote in message
news:11tjfqono5nrg8a@corp.supernews.com...
> In article <43d9b779$0$25084$ecde5a14@news.coretel.net>,
> CLFE <Junkmail@clfurent.com> wrote:
>
>> Most
>>suggestions are to fuse both the positive and negative leads on the radio
>>(going to the battery) - although you can get away often - with grounding
>>the negative and fusing the positive to the battery (for best results)
>
> I don't recommend fusing only the hot side. Fuse both. It's safer.
>
> Fusing the ground wire protects you against wiring faults. Consider
> what would happen if you don't do this, and your radio's chassis is
> grounded to the vehicle frame, and if the main grounding strap from
> the alternator to the battery comes loose at the battery end. Your
> rig's chassis, and its ground wire could end up being a major part of
> the ground-return current from the alternator to the battery. The
> ground wire may not be able to handle that much current, and might
> overheat or catch fire. If it's properly fused, the fuse will blow.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

I'm with you - I was just alluding to - in some cases, like CBs, people get
away with fusing only one lead. My personal opinion - fusing both sides is
the only way to go and most manuals I've read "do" suggest "both leads
fused".

CLF

964. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 12:54:35 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <5Imdna-n3fVuikfeRVn-jw@comcast.com>
Source record: 64925
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

"Dave Platt" <dplatt@radagast.org> wrote in message
news:11tjfqono5nrg8a@corp.supernews.com...
> In article <43d9b779$0$25084$ecde5a14@news.coretel.net>,
> CLFE <Junkmail@clfurent.com> wrote:
>
>> Most
>>suggestions are to fuse both the positive and negative leads on the radio
>>(going to the battery) - although you can get away often - with grounding
>>the negative and fusing the positive to the battery (for best results)
>
> I don't recommend fusing only the hot side. Fuse both. It's safer.
>
> Fusing the ground wire protects you against wiring faults.

I am using a Yaesu FT-857D. The power cord that comes with the radio is approx 8 feet long. At one end is the plug that matches the power jack on the radio. At the other end are TWO inline fuse connectors -- one in the red lead, one in the black lead -- with approx 10 inches of wire coming out of each fuse holder, bare at the end, to connect to the battery (or some other source of power). The inline fuse holders take standard automotive blade fuses. So -- it looks as though Yaesu intends for both positive and negative leads to be fused.

> Consider
> what would happen if you don't do this, and your radio's chassis is
> grounded to the vehicle frame, and if the main grounding strap from
> the alternator to the battery comes loose at the battery end. Your
> rig's chassis, and its ground wire could end up being a major part of
> the ground-return current from the alternator to the battery. The
> ground wire may not be able to handle that much current, and might
> overheat or catch fire. If it's properly fused, the fuse will blow.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

965. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 14:16:42 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <eXpCf.199081$OU5.8916@clgrps13>
Source record: 64776

Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have any experience with 4nec2, but have taken a quick look at the NEC manual to figure out what the error is.
The "GH" card generates a helix with the base positioned at z = 0. My first "GW" card positions a wire from the top of the helix with a length of 4". Since the GH card position is fixed it must be followed by a coordinate transformation "GM" to position the helix, and the GW 1, card to the desired position. For some reason the last field (ITS field) was filled with a decimal number indicating the range of "Tags" to be moved (000.051 which means all tags from zero to 51, but there are only 2 tags prior to the GM card, so don't know why this happened). In any case this worked on my model. The default entry for the ITS field is zero, or just leave blank. This works fine for me, and just moves the GW 1, and GH card positions as desired.

Experimenting with 4nec2 indicates if the only geometry card is a GH, followed by a GM card, then the transformation appears to work. It is only when there are other geometry cards present that the GM function fails.

More study of the help menu in 4nec2 is required to figure out the correct structure for the ITS field.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43D9B7B8.7070004@comcast.net...
>I tried to run the nec in 4nec2. It produces and error"
>
> "ITS GM card (x,y) not supported in nec2 engine"
>
> Which model are you using? Do you know the source of this error?
>
> Thanks - Dan
>
>
>
>
> Frank wrote:
>> Dan,
>>
>> Be interested to see what the exact dimensions of the coil are. Anyway,
>> it seems we have some agreement on the 600 nH value, although my physical
>> NEC helix models do not agree based on my estimate of your coil
>> dimensions. I understand that EZNec uses a "Minninec" ground, which
>> allows antenna contact with a perfect ground, but uses actual ground

>> parameters to analyze the reflections. I am not sure about this, but
>> would assume from the point of view of the input impedance, that the
>> ground would be considered perfect; and therefore lossless. I also
>> noticed I had some borderline NEC warnings when attempting to construct a
>> coil with #10 AWG, so sometimes had to resort to a much thinner
>> conductor.
>>
>> My models showed about 17 ohms at resonance when connected to a perfect
>> ground. The only time I observed impedances as low as 6 ohms was far
>> from resonance when the antenna was highly capacitive. Ideally I should
>> construct a ground screen, but for the time being will consider a perfect
>> ground.
>>
>> A free space dipole might be easier to model, but I am curious to
>> understand why there are discrepancies in the monopole modeling.
>>
>> Frank
>>
>> PS, be interested in any comments on my NEC code:
>>
>> CM Loaded 2 m monopole
>> CE
>> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
>> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
>> GM 100 0 0 0 0 0 0 4 000.051
>> GW 3 15 0.4 0 4 0.4 0 0 0.025
>> GS 0 0 0.025400
>> GE 1
>> GN 1
>> EX 0 3 15 00 1 0
>> LD 5 101 1 15 5.8001E7
>> LD 5 102 1 50 5.8001E7
>> LD 5 3 1 15 5.8001E7
>> FR 0 41 0 0 135 2
>> RP 0 181 1 1000 -90 90 1.00000 1.00000
>> EN
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:43D83E86.3000708@comcast.net...
>>
>>>Frank,
>>>
>>>I will re-measure the coil dimensions. The recall the coil measured
>>>600nH. That is the value I used when I modeled this antenna using EZNec.
>>>It showed resonance at about 145 MHz and 12 Ohms. (That was using an
>>>average real ground.)
>>>
>>>If I assume the antenna measurements are correct then is it the ground
>>>that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
>>>
>>>Now I am on to model and measure a center loaded dipole.

>>>
>>>Dan
>>>
>>>Frank wrote:
>>>
>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
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>>>>
>>>>>Frank,
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>>>>>The antenna I am trying to model is a center 'loaded vertical'. It is a
>>>>>4 inch base, 5 turns at 40 percent spacing on a .8 diameter inch form
>>>>>and a 4 inch tip. The material is Num 10 solid copper. I adjust the
>>>>>frequency by stretching or compressing the coil. Currently it is
>>>>>resonant at about 141.7 Mhz. The 8405a shows a phase shift of 1 degree
>>>>>per 30 kc change in frequency.
>>>>>
>>>>>I have used both the vertload model and the EZNEC model. Both predict
>>>>>an antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power
>>>>>difference between forward and reverse. The antenna shows a 10 db power
>>>>>difference between forward and reverse.
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>>>>>Thanks - Dan
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>>>>Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in length
>>>>from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
>>>>approximately 9" long monopole, with a 5 turn helix appears to be
>>>>resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>>>>at 141 MHz. Using a lumped element simulation the required load
>>>>inductance, for 141 MHz, is about 600 nH.
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>>>>The only way to resolve these discrepancies is to do a standard single
>>>>port network analyzer calibration and measure the actual input impedance
>>>>of the antenna.
>>>>
>>>>Frank
>>
>>

966. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 14:35:27 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <PcqCf.199083$OU5.116044@clgrps13>
Source record: 64777

Ok Dan, figured where the problem was. It is just necessary to set the ITS field to zero, and the code runs ok.

Frank

"Frank" <ve6cb@nospam.telus.net> wrote in message
news:eXpCf.199081$OU5.8916@clgrps13...
> Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have any
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>>>>>
>>>>>The only way to resolve these discrepancies is to do a standard single
>>>>>port network analyzer calibration and measure the actual input
>>>>>impedance of the antenna.
>>>>>
>>>>>Frank
>>>
>>>
>

967. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 15:39:17 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <7sOdnZEHkLUco0fenZ2dnUVZ_tednZ2d@comcast.com>
Source record: 64778

"Carsten Hjorth" <carstenfjernhjorth@yahoo.dk> wrote in message
news:43d949a4$0$12401$ba624c82@nntp02.dk.telia.net...
> Hello!
>
> I just bought this: http://www.rustindustries.co.uk/remote.htm
> The range is only 10-15 meters in free air, only 5-7 meters indoor.
> Is it possible to connect a whip type antenna?
> I have calculated a length ca 17 cm.
> But i cannot see where to connect the antenna.
> The transmitter has a loop style antenna, powered by one transistor and a
> oscillator of some sort, i have drawn a schematic:
> http://media.openbloc.com/1tpwr
> I have tried to connect the antenna to the collector, but that gave me no
> output at all.
>
> Regards
>
> Carsten Hjorth
>
You might want to do something with the receiving antenna. My 4xx MHz garage
door opener has about 30 meters range.

Tam/WB2TT

968. RFID ant cookbook link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 16:07:53 UTC
From: Henry Kolesnik <kolesnik@sbcglobal.net>
Message-ID: <tzrCf.4507$2O6.4447@newssvr12.news.prodigy.com>
Source record: 64779

Interesting loop ant design for RFID from TI.
http://www.ti.com/rfid/docs/manuals/appNotes/HFAntennaCookbook.pdf
--

73
Hank WD5JFR

969. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 16:13:29 UTC
From: kc1di <elbc2@pivot.net>
Message-ID: <BNmdnQnYRLox20fenZ2dnUVZ_t-dnZ2d@taconic.net>
Source record: 64780

John, N9JG wrote:
> My antenna is a Butternut HF6V vertical. This antenna is ground mounted and
> has 32 radials, which have been laid on top of the grass. The average length
> of the radials is about 30 feet. I operate primarily on 40 meters, and I
> seem to receive good signal reports.
>
> Today, I ran into another operator on 40 meters, who told me that I would
> get a large signal improvement if I increased the number of radials from the
> current 32 to 100 or 120. In fact he said he had seen information on the
> SteppIR website (http://www.steppir.com/) that supported his assertion.
> Remembering how hard I had worked to install my existing 32 radials, I
> responded that the effect of quadrupling my radial count would probably give
> only a small increase in gain of less than one dB. Indeed Cebik's website
> (http://www.cebik.com/gp/gr.html) seems to support this view with a graphic
> titled "Radial Length vs. Number of Radials". If I am interpreting this
> graphic correctly, the gain increase from 32 radials to 128 radials is about
> 0.5 dB.
>
> Any comments would be gratefully received.
>
> John, N9JG
>
>
Hi John,

I once had a 30m Vertical ground mounted with 120 radials and it worked
great.. but it work quite well with the 40 or so I had at first also..
the other dynamic that is at work that you hardly ever hear about is
that as you increase the number of radials say from your 32 to approach
100 or so you also need to increase their length so it approaches
1/2wave for each radial.

as a rule of thumb you should keep adding radials until you see no
further change in antenna input impedance. At that point it is not
worth the effort or expense to add more.

73 Dave kc1di

970. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 16:35:53 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97585775F6226doldridgsprintca@64.59.135.159>
Source record: 64781

"John, N9JG" <john@gotwals.XremoveY.com> wrote in
news:pdTBf.513451$084.293169@attbi_s22:

> CORRECTION - I mean to write 90 radials rather than 90 verticals!!!

Heh heh. There does come a point, though, where more verticals will achieve the same result at less expense than more radials. I've found that 8 radials of about the same length as antenna height works well, even with multiband antennas. And a second antenna will recover the gain to the same level as 120 radials (standard broadcast design), plus providing a steerable pattern. Coils eat up as much and can be eliminated, or made smaller with top-loading capacity hats.

Or, for radial-free performance, design it as an end-fed half-wave!

--
Dave Oldridge+
ICQ 1800667

971. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 17:12:31 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehq5xq3f3pa000@cnews.newsguy.com>
Source record: 64782
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

John Popelish wrote:

> Why would that be the best arrangement? No steady state power comes
> from the battery. If you want the least voltage drop, you take a
> pair of wires back to the alternator, where the power originates.
~~~~~~

I think John is right, however I would never do it that way. The extra millivolts you pick up are going to be smothered in alternator noise and if large enough, might actually be too high for the radio. Radios are typically designed to run from 13.8 volts maximum, whereas alternators often put out more than that.

The additional few watts you get from your transmitter will not be noticeable in normal operation anyway.

Bill, W6WRT
~~~~~~

972. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 17:22:39 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehq66q3s4je001@cnews.newsguy.com>
Source record: 64783
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,rec.radio.amateur.equipment

CLFE wrote:

> although you can get away often - with grounding the negative and
> fusing the positive to the battery
~~~~~~

If you connect the radio's negative lead (unfused) to the car's chassis you should be ok. A problem can occur if you connect the radio's unfused negative lead directly to the battery terminal, as is often advised.

If the car's ground wire from the battery to the car's chassis ever comes loose and you go to start the car, all the starter current will try to flow through your radio's negative lead and through your coax to where the coax is grounded at the antenna feed point. I have seen pictures of what this several hundred amps does to a radio and it's not pretty.

Most radios today are supplied with a power cord having a fuse in each lead for good reason. Don't defeat their purpose.

73, Bill W6WRT
~~~~~~

973. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 18:01:36 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <srmkt1htht4o926mm0vsdvtvd3l7qkenja@4ax.com>
Source record: 64784

On Fri, 27 Jan 2006 16:13:29 +0000, kc1di <elbc2@pivot.net> wrote:

[op snipped]
>Hi John,
>
>I once had a 30m Vertical ground mounted with 120 radials and it worked
>great.. but it work quite well with the 40 or so I had at first also..
>the other dynamic that is at work that you hardly ever hear about is
>that as you increase the number of radials say from your 32 to approach
>100 or so you also need to increase their length so it approaches
>1/2wave for each radial.

You hear about it if you read Devoldere's "Low-Band DXing." [g]

He quotes a rule of thumb developed by a fellow member of my DX club, Eric, N7CL, who says that radial length and number should be such that the tips are not more than 0.015 lambda apart. So if you use 1/4 lambda radials you need 104 of them to be within 0.1 dB of theoretical max gain (over average to good ground). Half this number would reduce the gain by about 1/2 dB.

Of course right above this text in the book is a table that shows for 120 radials the optimum length is 0.5 lambda. So the same book, on the same page has two different "rules."

Personally, my "rule of thumb" is that the radials need be no longer than the physical height of the radiator (<1/4 lambda) and their number follow Eric's rule.

>
>as a rule of thumb you should keep adding radials until you see no
>further change in antenna input impedance. At that point it is not
>worth the effort or expense to add more.

The problem with this is that the derived number is dependent upon the resolution of the instrumentation. If you can't see a 5 Ohm change, you quit early. If you can resolve 0.1 Ohm, you keep adding wire, even though the efficiency improvement will be insignificant.

974. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 21:13:29 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <Z1wCf.228727$V7.167866@news-server.bigpond.net.au>
Source record: 64785

What are these "Cards" you guys are referring to ?

Frank wrote:
> Ok Dan, figured where the problem was. It is just necessary to set the ITS
> field to zero, and the code runs ok.
>
> Frank
>
> "Frank" <ve6cb@nospam.telus.net> wrote in message
> news:eXpCf.199081$OU5.8916@clgrps13...
>> Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have any
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>> of 4". Since the GH card position is fixed it must be followed by a
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>> filled with a decimal number indicating the range of "Tags" to be moved
>> (000.051 which means all tags from zero to 51, but there are only 2 tags
>> prior to the GM card, so don't know why this happened). In any case this
>> worked on my model. The default entry for the ITS field is zero, or just
>> leave blank. This works fine for me, and just moves the GW 1, and GH card
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>> More study of the help menu in 4nec2 is required to figure out the correct
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>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
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>>> I tried to run the nec in 4nec2. It produces and error"
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>>> "ITS GM card (x,y) not supported in nec2 engine"
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>>> Which model are you using? Do you know the source of this error?
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>>> Thanks - Dan
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>>> Frank wrote:
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>>>> Be interested to see what the exact dimensions of the coil are. Anyway,
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>>>> A free space dipole might be easier to model, but I am curious to
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>>>> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
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>>>> GM 100 0 0 0 0 0 0 4 000.051
>>>> GW 3 15 0.4 0 4 0.4 0 0 0.025
>>>> GS 0 0 0.025400
>>>> GE 1
>>>> GN 1
>>>> EX 0 3 15 00 1 0
>>>> LD 5 101 1 15 5.8001E7
>>>> LD 5 102 1 50 5.8001E7
>>>> LD 5 3 1 15 5.8001E7
>>>> FR 0 41 0 0 135 2
>>>> RP 0 181 1 1000 -90 90 1.00000 1.00000
>>>> EN
>>>> "dansawyeror" <dansawyeror@comcast.net> wrote in message

>>>> news:43D83E86.3000708@comcast.net...
>>>>
>>>>> Frank,
>>>>>
>>>>> I will re-measure the coil dimensions. The recall the coil measured
>>>>> 600nH. That is the value I used when I modeled this antenna using EZNec.
>>>>> It showed resonance at about 145 MHz and 12 Ohms. (That was using an
>>>>> average real ground.)
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>>>>> If I assume the antenna measurements are correct then is it the ground
>>>>> that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
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>>>>>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>>> news:JJWdnUFF2tOojUreRVn-sw@comcast.com...
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>>>>>>> form and a 4 inch tip. The material is Num 10 solid copper. I adjust
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>>>>>>> I have used both the vertload model and the EZNEC model. Both predict
>>>>>>> an antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power
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>>>>>>> Thanks - Dan
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>>>>>> resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>>>>>> at 141 MHz. Using a lumped element simulation the required load
>>>>>> inductance, for 141 MHz, is about 600 nH.
>>>>>>
>>>>>> The only way to resolve these discrepancies is to do a standard single
>>>>>> port network analyzer calibration and measure the actual input
>>>>>> impedance of the antenna.
>>>>>>
>>>>>> Frank

>>>>
>
>

975. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 21:37:21 UTC
From: kc1di <elbc2@pivot.net>
Message-ID: <DpKdnaFdP7gPD0feRVn-tQ@taconic.net>
Source record: 64786

Wes Stewart wrote:
> On Fri, 27 Jan 2006 16:13:29 +0000, kc1di <elbc2@pivot.net> wrote:
>
> [op snipped]
>> Hi John,
>>
>> I once had a 30m Vertical ground mounted with 120 radials and it worked
>> great.. but it work quite well with the 40 or so I had at first also..
>> the other dynamic that is at work that you hardly ever hear about is
>> that as you increase the number of radials say from your 32 to approach
>> 100 or so you also need to increase their length so it approaches
>> 1/2wave for each radial.
>
> You hear about it if you read Devoldere's "Low-Band DXing." [g]
>
> He quotes a rule of thumb developed by a fellow member of my DX club,
> Eric, N7CL, who says that radial length and number should be such that
> the tips are not more than 0.015 lambda apart. So if you use 1/4
> lambda radials you need 104 of them to be within 0.1 dB of theoretical
> max gain (over average to good ground). Half this number would reduce
> the gain by about 1/2 dB.
>
> Of course right above this text in the book is a table that shows for
> 120 radials the optimum length is 0.5 lambda. So the same book, on
> the same page has two different "rules."
>
> Personally, my "rule of thumb" is that the radials need be no longer
> than the physical height of the radiator (<1/4 lambda) and their
> number follow Eric's rule.
>
>
>> as a rule of thumb you should keep adding radials until you see no
>> further change in antenna input impedance. At that point it is not
>> worth the effort or expense to add more.
>
> The problem with this is that the derived number is dependent upon the
> resolution of the instrumentation. If you can't see a 5 Ohm change,
> you quit early. If you can resolve 0.1 Ohm, you keep adding wire,
> even though the efficiency improvement will be insignificant.
>
some point well take Wes,
73 Dave

976. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 22:00:08 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <lJwCf.112394$m05.23688@clgrps12>
Source record: 64787

A card is a line of NEC code. I guess it is a hold over from the old days
when NEC must have been run with FORTRAN punch-cards on a mainframe
computer.

Frank

"David" <dhuisman@bigpond.net.au> wrote in message
news:Z1wCf.228727$V7.167866@news-server.bigpond.net.au...
> What are these "Cards" you guys are referring to ?
>
> Frank wrote:
>> Ok Dan, figured where the problem was. It is just necessary to set the
>> ITS field to zero, and the code runs ok.
>>
>> Frank
>>
>> "Frank" <ve6cb@nospam.telus.net> wrote in message
>> news:eXpCf.199081$OU5.8916@clgrps13...
>>> Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have
>>> any experience with 4nec2, but have taken a quick look at the NEC manual
>>> to figure out what the error is.
>>> The "GH" card generates a helix with the base positioned at z = 0. My
>>> first "GW" card positions a wire from the top of the helix with a length
>>> of 4". Since the GH card position is fixed it must be followed by a
>>> coordinate transformation "GM" to position the helix, and the GW 1, card
>>> to the desired position. For some reason the last field (ITS field) was
>>> filled with a decimal number indicating the range of "Tags" to be moved
>>> (000.051 which means all tags from zero to 51, but there are only 2 tags
>>> prior to the GM card, so don't know why this happened). In any case
>>> this worked on my model. The default entry for the ITS field is zero,
>>> or just leave blank. This works fine for me, and just moves the GW 1,
>>> and GH card positions as desired.
>>>
>>> Experimenting with 4nec2 indicates if the only geometry card is a GH,
>>> followed by a GM card, then the transformation appears to work. It is
>>> only when there are other geometry cards present that the GM function
>>> fails.
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>>> More study of the help menu in 4nec2 is required to figure out the
>>> correct structure for the ITS field.
>>>
>>> Frank
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>>>
>>> "dansawyeror" <dansawyeror@comcast.net> wrote in message

>>> news:43D9B7B8.7070004@comcast.net...
>>>> I tried to run the nec in 4nec2. It produces and error"
>>>>
>>>> "ITS GM card (x,y) not supported in nec2 engine"
>>>>
>>>> Which model are you using? Do you know the source of this error?
>>>>
>>>> Thanks - Dan
>>>>
>>>>
>>>>
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>>>> Frank wrote:
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>>>>> Be interested to see what the exact dimensions of the coil are.
>>>>> Anyway, it seems we have some agreement on the 600 nH value, although
>>>>> my physical NEC helix models do not agree based on my estimate of your
>>>>> coil dimensions. I understand that EZNec uses a "Minninec" ground,
>>>>> which allows antenna contact with a perfect ground, but uses actual
>>>>> ground parameters to analyze the reflections. I am not sure about
>>>>> this, but would assume from the point of view of the input impedance,
>>>>> that the ground would be considered perfect; and therefore lossless.
>>>>> I also noticed I had some borderline NEC warnings when attempting to
>>>>> construct a coil with #10 AWG, so sometimes had to resort to a much
>>>>> thinner conductor.
>>>>>
>>>>> My models showed about 17 ohms at resonance when connected to a
>>>>> perfect ground. The only time I observed impedances as low as 6 ohms
>>>>> was far from resonance when the antenna was highly capacitive.
>>>>> Ideally I should construct a ground screen, but for the time being
>>>>> will consider a perfect ground.
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>>>>> A free space dipole might be easier to model, but I am curious to
>>>>> understand why there are discrepancies in the monopole modeling.
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>>>>> PS, be interested in any comments on my NEC code:
>>>>>
>>>>> CM Loaded 2 m monopole
>>>>> CE
>>>>> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
>>>>> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
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>>>>>> EZNec. It showed resonance at about 145 MHz and 12 Ohms. (That was
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>>>>>>> be resonant at about 190 MHz, with a highly reactive 6 ohm input

>>>>>>> impedance at 141 MHz. Using a lumped element simulation the required
>>>>>>> load inductance, for 141 MHz, is about 600 nH.
>>>>>>>
>>>>>>> The only way to resolve these discrepancies is to do a standard
>>>>>>> single port network analyzer calibration and measure the actual
>>>>>>> input impedance of the antenna.
>>>>>>>
>>>>>>> Frank
>>>>>
>>

977. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 22:49:02 UTC
From: Carsten Hjorth <carstenfjernhjorth@yahoo.dk>
Message-ID: <43daa35c$0$11673$ba624c82@nntp02.dk.telia.net>
Source record: 64788

"Tam/WB2TT" <t-tammaru@c0mca$t.net> skrev i en meddelelse
news:7sOdnZEHkLUco0fenZ2dnUVZ_tednZ2d@comcast.com...
>
> "Carsten Hjorth" <carstenfjernhjorth@yahoo.dk> wrote in message
> news:43d949a4$0$12401$ba624c82@nntp02.dk.telia.net...
>> Hello!
>>
>> I just bought this: http://www.rustindustries.co.uk/remote.htm
>> The range is only 10-15 meters in free air, only 5-7 meters indoor.
>> Is it possible to connect a whip type antenna?
>> I have calculated a length ca 17 cm.
>> But i cannot see where to connect the antenna.
>> The transmitter has a loop style antenna, powered by one transistor and a
>> oscillator of some sort, i have drawn a schematic:
>> http://media.openbloc.com/1tpwr
>> I have tried to connect the antenna to the collector, but that gave me no
>> output at all.
>>
>> Regards
>>
>> Carsten Hjorth
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> You might want to do something with the receiving antenna. My 4xx MHz
> garage door opener has about 30 meters range.
>
> Tam/WB2TT

I�m in Denmark and its frezing...
Should i extend the wip antenna on the receiver? Now it�s a 1/4 wave, should
i try full wave?

/Carsten

978. need advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 23:28:19 UTC
From: don <wxfreqrs@cableone.net>
Message-ID: <11tlb4kkc5qr73b@corp.supernews.com>
Source record: 64789

just bought a 26 ft seafox boat
have a icom V8000 installed but was wonder about the antenna

SUGGESTIONS????

--
Don
KB5FHX
SEMPER VIGILIS
REAL TIME WEATHER OBS http://myweb.cableone.net/wxfreqrs/
JCARA RADIO HOMEPAGE http://www.jcmsara.org
MARITIME MINUTEMEN http://gulfmaritime.minutemen.amist.us/

979. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 23:29:38 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <C1yCf.228816$V7.45635@news-server.bigpond.net.au>
Source record: 64790

Frank,

Thanks for that.

BTW: Does anyone know where I can get the wgnuplot.exe for 4nec2ex ?
The site has a link to the gnuplot only, I tried this link but is brings
up a page error.

Frank wrote:
> A card is a line of NEC code. I guess it is a hold over from the old days
> when NEC must have been run with FORTRAN punch-cards on a mainframe
> computer.
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>>>>>>>> The only way to resolve these discrepancies is to do a standard
>>>>>>>> single port network analyzer calibration and measure the actual
>>>>>>>> input impedance of the antenna.
>>>>>>>>
>>>>>>>> Frank
>

980. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-27 23:31:06 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <_2yCf.228818$V7.160041@news-server.bigpond.net.au>
Source record: 64791

Have you contacted the supplier to verify what the typical range should
be and get their recommendation for appropriate antenna ?

Carsten Hjorth wrote:
> "Tam/WB2TT" <t-tammaru@c0mca$t.net> skrev i en meddelelse
> news:7sOdnZEHkLUco0fenZ2dnUVZ_tednZ2d@comcast.com...
>> "Carsten Hjorth" <carstenfjernhjorth@yahoo.dk> wrote in message
>> news:43d949a4$0$12401$ba624c82@nntp02.dk.telia.net...
>>> Hello!
>>>
>>> I just bought this: http://www.rustindustries.co.uk/remote.htm
>>> The range is only 10-15 meters in free air, only 5-7 meters indoor.
>>> Is it possible to connect a whip type antenna?
>>> I have calculated a length ca 17 cm.
>>> But i cannot see where to connect the antenna.
>>> The transmitter has a loop style antenna, powered by one transistor and a
>>> oscillator of some sort, i have drawn a schematic:
>>> http://media.openbloc.com/1tpwr
>>> I have tried to connect the antenna to the collector, but that gave me no
>>> output at all.
>>>
>>> Regards
>>>
>>> Carsten Hjorth
>>>
>> You might want to do something with the receiving antenna. My 4xx MHz
>> garage door opener has about 30 meters range.
>>
>> Tam/WB2TT
>
> Iï¿½m in Denmark and its frezing...
> Should i extend the wip antenna on the receiver? Now itï¿½s a 1/4 wave, should
> i try full wave?
>
> /Carsten
>
>

981. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 00:41:03 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <dKGdnWb15v3nIEfeRVn-iA@comcast.com>
Source record: 64792

"Carsten Hjorth" <carstenfjernhjorth@yahoo.dk> wrote in message
news:43daa35c$0$11673$ba624c82@nntp02.dk.telia.net...
>
> "Tam/WB2TT" <t-tammaru@c0mca$t.net> skrev i en meddelelse
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>>> Hello!
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>>> I just bought this: http://www.rustindustries.co.uk/remote.htm
>>> The range is only 10-15 meters in free air, only 5-7 meters indoor.
>>> Is it possible to connect a whip type antenna?
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>>> The transmitter has a loop style antenna, powered by one transistor and
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>> garage door opener has about 30 meters range.
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>> Tam/WB2TT
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> I�m in Denmark and its frezing...
> Should i extend the wip antenna on the receiver? Now it�s a 1/4 wave,
> should i try full wave?
>
> /Carsten
>
Full wave won't work, but 5/8 or 3/4 might work better than 1/4. If it does
not have to be non directional, you could use some kind of an antenna that
has some gain, like a 3 element Yagi. You are in the 70 cm ham band; so, any
of the common 430 - 440 Mhz antennas will work, provided you can connect it
to the receiver.

Tam

982. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 02:04:35 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43DAD133.2000705@comcast.net>
Source record: 64793

Frank,

Umm. I tried to set the GM ITS field to 0 and that did not make any difference.
Can you forward the nec file that does not produce the error?

Thanks - Dan

Frank wrote:
> Ok Dan, figured where the problem was. It is just necessary to set the ITS
> field to zero, and the code runs ok.
>
> Frank
>
> "Frank" <ve6cb@nospam.telus.net> wrote in message
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>>(000.051 which means all tags from zero to 51, but there are only 2 tags
>>prior to the GM card, so don't know why this happened). In any case this
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>>leave blank. This works fine for me, and just moves the GW 1, and GH card
>>positions as desired.
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>>More study of the help menu in 4nec2 is required to figure out the correct
>>structure for the ITS field.
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>>Frank
>>
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>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>news:43D9B7B8.7070004@comcast.net...
>>

>>>I tried to run the nec in 4nec2. It produces and error"
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>>>"ITS GM card (x,y) not supported in nec2 engine"
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>>>Which model are you using? Do you know the source of this error?
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>>>Thanks - Dan
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>>>Frank wrote:
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>>>>Dan,
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>>>>Be interested to see what the exact dimensions of the coil are. Anyway,
>>>>it seems we have some agreement on the 600 nH value, although my
>>>>physical NEC helix models do not agree based on my estimate of your coil
>>>>dimensions. I understand that EZNec uses a "Minninec" ground, which
>>>>allows antenna contact with a perfect ground, but uses actual ground
>>>>parameters to analyze the reflections. I am not sure about this, but
>>>>would assume from the point of view of the input impedance, that the
>>>>ground would be considered perfect; and therefore lossless. I also
>>>>noticed I had some borderline NEC warnings when attempting to construct
>>>>a coil with #10 AWG, so sometimes had to resort to a much thinner
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>>>>ground. The only time I observed impedances as low as 6 ohms was far
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>>>>construct a ground screen, but for the time being will consider a
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>>>>Frank
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>>>>PS, be interested in any comments on my NEC code:
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>>>>GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
>>>>GM 100 0 0 0 0 0 0 4 000.051
>>>>GW 3 15 0.4 0 4 0.4 0 0 0.025
>>>>GS 0 0 0.025400
>>>>GE 1
>>>>GN 1
>>>>EX 0 3 15 00 1 0

>>>>LD 5 101 1 15 5.8001E7
>>>>LD 5 102 1 50 5.8001E7
>>>>LD 5 3 1 15 5.8001E7
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>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>news:43D83E86.3000708@comcast.net...
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>>>>
>>>>>Frank,
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>>>>>I will re-measure the coil dimensions. The recall the coil measured
>>>>>600nH. That is the value I used when I modeled this antenna using EZNec.
>>>>>It showed resonance at about 145 MHz and 12 Ohms. (That was using an
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>>>>>If I assume the antenna measurements are correct then is it the ground
>>>>>that accounts for the difference between 6 Ohms and the modeled 12 Ohms?
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>>>>>>>I have used both the vertload model and the EZNEC model. Both predict
>>>>>>>an antenna R of about 5 Ohms. The 25 Ohm load shows a 12 db power
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>>>>>>>power difference between forward and reverse.
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>>>>>>>Thanks - Dan
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>>>>>>Dan, I have modelled a 5 turn inductor, 0.8" diameter, varying in

>>>>>>length from 0.8" to 1.6". The inductance values are 380 - 490 nH. An,
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>>>>>>resonant at about 190 MHz, with a highly reactive 6 ohm input impedance
>>>>>>at 141 MHz. Using a lumped element simulation the required load
>>>>>>inductance, for 141 MHz, is about 600 nH.
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>>>>>>The only way to resolve these discrepancies is to do a standard single
>>>>>>port network analyzer calibration and measure the actual input
>>>>>>impedance of the antenna.
>>>>>>
>>>>>>Frank
>>>>
>>>>
>
>

983. Re: need advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 03:37:01 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <2DBCf.735$fZ2.41@bignews4.bellsouth.net>
Source record: 64794

"don" <wxfreqrs@cableone.net> wrote in message
news:11tlb4kkc5qr73b@corp.supernews.com...
> just bought a 26 ft seafox boat
> have a icom V8000 installed but was wonder about the antenna
>
nice boat and nice rig.....
put a 50 ft pine tree on the bow and another on the stern, and string up a
dipole. :-)
or -
- a 5/8-wave vertical for everyday use
and
a 3-element beam for reaching back to shore from way-out.
--- but ---
If you loose the repeater while using the vertical, head back in right
away, because you're too far from shore.

984. Re: need advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 03:48:32 UTC
From: Capt Jack <jack@satterfield.org>
Message-ID: <1138420112.068973.242400@g47g2000cwa.googlegroups.com>
Source record: 64795

Hamstick has a nice antenna for marine/boat applications
http://www.hamstick.com/

Jack
w4grj

985. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 04:03:32 UTC
From: Capt Jack <jack@satterfield.org>
Message-ID: <1138421012.555769.250140@g44g2000cwa.googlegroups.com>
Source record: 64796

I have been using this antenna for about 4 months now with excellent results. It works very well on all the ham bands up to 6 meters. Unlike the test in the QST article where they mounted the antenna at ground level. The trick is to get it up in the air 30 to 35 feet. In my case, I have the base at about 30 feet in the air. If you can't mount the antenna at the recommended height then look at one of the GAP verticals.

Jack
w4grj

986. Re: need advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 04:24:49 UTC
From: don <wxfreqrs@cableone.net>
Message-ID: <11tlsghn62h8bf2@corp.supernews.com>
Source record: 64797

will check it out
thinking of hustler Model CGT-144

--
Don
SEMPER VIGILIS
REAL TIME WEATHER OBS http://myweb.cableone.net/wxfreqrs/
JCARA RADIO HOMEPAGE http://www.jcmsara.org
MARITIME MINUTEMEN http://gulfmaritime.minutemen.amist.us/

"Capt Jack" <jack@satterfield.org> wrote in message
news:1138420112.068973.242400@g47g2000cwa.googlegroups.com...
> Hamstick has a nice antenna for marine/boat applications
> http://www.hamstick.com/
>
> Jack
> w4grj
>

987. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 04:29:38 UTC
From: richardharrison@webtv.net
Message-ID: <4476-43DAF332-28@storefull-3254.bay.webtv.net>
Source record: 64798

Carsten wrote:
"Is it possible to connect a whip type?"

Probably, or perhaps a dipole.

The wavelength is short. You can get antenna gain without connections if you use reflectors with your existing antennas. The reflecting surfaces can be plane sheets or grids aligned with the polarization of the antenna.

You did not give the size of your loop. If the loop has a perimeter of one wavelength, propagation is broadside to the loop. If it is smaller, propagation is in the plane of the loop.
Polarization depends on where the loop is fed.

Your wavelength is about 0.7 m.

If a perfect flat sheet is 1/4-wavelength behind your antenna, you may get about 5 dB gain in the forward direction from the reflector.

Replace the flat sheet with a 90-degree corner reflector, and the gain rises to 10 dB with 1/4-wave spacing between the antenna and the corner.

11 or 12 dB gain may be obtained by using a 60-degree corner.

For a 1/2-wave dipole spaced either 1/4-wave or 1/2-wave from a 90-degree corner, the gain is about the same (10 dB).

1/4-wave spacing of a 1/2-wave dipole from a 90-degree corner gives a drivepoint impedance of about 85 ohms.

1/2-wave spacing of a 1/2-wave dipole from a 90-degree corner gives a drivepoint impedance of about 125 ohms.

As the 1/2-wave dipole without a reflector has a drivepoint impedance of 73 ohms, impedance upset from coupling to the reflector is significant but not excessive.

See Kraus "Antennas" under the topic: "Corner reflector" for details.

Best regards, Richard Harrison, KB5WZI

988. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 05:41:23 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <7uDCf.202839$OU5.128573@clgrps13>
Source record: 64799

Dan, here is the code I copied and pasted it directly from 4nec2 nec edit page. I have not yet figured out how to have swept frequency data, as the program only seems to recognize the first frequency of 135 MHz.

Frank

```
CM Loaded 2 m monopole
CE
GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
GM 100 0 0 0 0 0 0 4 0
GW 3 15 0.4 0 4 0.4 0 0 0.025
GS 0 0 0.025400
GE 1
GN 1
EX 0 3 15 00 1 0
LD 5 101 1 15 5.8001E7
LD 5 102 1 50 5.8001E7
LD 5 3 1 15 5.8001E7
FR 0 41 0 0 135 2
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43DAD133.2000705@comcast.net...
> Frank,
>
> Umm. I tried to set the GM ITS field to 0 and that did not make any
> difference. Can you forward the nec file that does not produce the error?
>
> Thanks - Dan
>
> Frank wrote:
>> Ok Dan, figured where the problem was. It is just necessary to set the
>> ITS field to zero, and the code runs ok.
>>
>> Frank
>>
>> "Frank" <ve6cb@nospam.telus.net> wrote in message
>> news:eXpCf.199081$OU5.8916@clgrps13...
>>
>>>Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have any
>>>experience with 4nec2, but have taken a quick look at the NEC manual to
>>>figure out what the error is.
>>>The "GH" card generates a helix with the base positioned at z = 0. My

>>>first "GW" card positions a wire from the top of the helix with a length
>>>of 4". Since the GH card position is fixed it must be followed by a
>>>coordinate transformation "GM" to position the helix, and the GW 1, card
>>>to the desired position. For some reason the last field (ITS field) was
>>>filled with a decimal number indicating the range of "Tags" to be moved
>>>(000.051 which means all tags from zero to 51, but there are only 2 tags
>>>prior to the GM card, so don't know why this happened). In any case this
>>>worked on my model. The default entry for the ITS field is zero, or just
>>>leave blank. This works fine for me, and just moves the GW 1, and GH card
>>>positions as desired.
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>>>Experimenting with 4nec2 indicates if the only geometry card is a GH,
>>>followed by a GM card, then the transformation appears to work. It is
>>>only when there are other geometry cards present that the GM function
>>>fails.
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>>>More study of the help menu in 4nec2 is required to figure out the
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>>>Frank
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>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
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>>>>I tried to run the nec in 4nec2. It produces and error"
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>>>>"ITS GM card (x,y) not supported in nec2 engine"
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>>>>Which model are you using? Do you know the source of this error?
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>>>>Thanks - Dan
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>>>>Frank wrote:
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>>>>>Dan,
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>>>>>Be interested to see what the exact dimensions of the coil are.
>>>>>Anyway, it seems we have some agreement on the 600 nH value, although
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989. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 05:47:39 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <%zDCf.202840$OU5.134180@clgrps13>
Source record: 64800

"David" <dhuisman@bigpond.net.au> wrote in message
news:C1yCf.228816$V7.45635@news-server.bigpond.net.au...
> Frank,
>
> Thanks for that.
>
> BTW: Does anyone know where I can get the wgnuplot.exe for 4nec2ex ?
> The site has a link to the gnuplot only, I tried this link but is brings
> up a page error.

Dave, sorry I am not very familiar with 4nec, so have no idea what wgnuplot.exe is. Most of my NEC experience is with NEC-Win Pro, which is so straightforward and easy to use. Not that I mean to degrade 4nec2, I think the guys have done a great job for the free software. I guess your best approach is to keep bugging Arie as I am sure he knows.

Frank

>
> Frank wrote:
>> A card is a line of NEC code. I guess it is a hold over from the old
>> days when NEC must have been run with FORTRAN punch-cards on a mainframe
>> computer.
>>
>> Frank
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>> "David" <dhuisman@bigpond.net.au> wrote in message
>> news:Z1wCf.228727$V7.167866@news-server.bigpond.net.au...
>>> What are these "Cards" you guys are referring to ?
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>>> Frank wrote:
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>>>>>>>>> single port network analyzer calibration and measure the actual
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>>>>>>>>> Frank
>>

990. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 06:14:56 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <do2mt1939jfcq26oprb5lnsdpfvd6s0do4@4ax.com>
Source record: 64801

On Fri, 27 Jan 2006 23:29:38 GMT, David <dhuisman@bigpond.net.au>
wrote:

>Frank,
>
>Thanks for that.
>
>BTW: Does anyone know where I can get the wgnuplot.exe for 4nec2ex ?
>The site has a link to the gnuplot only, I tried this link but is brings
>up a page error.

I didn't find it too hard, I followed the links from Arie's page.

Try ftp://ftp.gnuplot.info/pub/gnuplot/ and see if you can identify
the correct binary for your (unstated) needs (presumably one of the
windows versions, probably win32 since you wanted w*.exe).

Owen
>
>Frank wrote:
>> A card is a line of NEC code. I guess it is a hold over from the old days
>> when NEC must have been run with FORTRAN punch-cards on a mainframe
>> computer.
>>
>> Frank
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>>> Frank wrote:
>>>> Ok Dan, figured where the problem was. It is just necessary to set the
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>>>> "Frank" <ve6cb@nospam.telus.net> wrote in message
>>>> news:eXpCf.199081$OU5.8916@clgrps13...
>>>>> Dan, I am running NEC-Win Pro from Nittany Scientific. I do not have
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991. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 17:00:17 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43DBA321.7060902@comcast.net>
Source record: 64802

Frank,

I have now been able to get this to work. Thank you. Open the main window, and then the calculate button, and then select the first option. This causes my system to perform a sweep. It shows a resonance sweep for this model.

I am currently stuck performing a successful update of the input file. I would like to use the windows feature to change the coil spec for instance.

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992. e_Y ***Hot stuff - check this out !!! e_Y

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 17:37:32 UTC
From: tinman4 <tinman4@yahoo.com>
Message-ID: <Ax1Df.60467$C%3.5333@bignews2.bellsouth.net>
Source record: 64819

http://www.kaneva.com/checkout/stream.aspx?assetId=2017&free=0

993. Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 19:51:15 UTC
From: gsm@mendelson.com
Message-ID: <slrndtnib5.v7g.gsm@cable.mendelson.com>
Source record: 64803

I have an MFJ modle 249 (the original with a meter) antenna analyzer. MFJ
sells a kit of two coils to make it into a dip meter.

I would like to use it to measure the resonant fequency of a traps I
am building, but am unable to purchase the coils.

Is there a way to make then on your own?

TIA,

Geoff.

--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Vist my 'blog at http://geoffstechno.livejournal.com/

994. Re: 8405a working and measuring resonance?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 20:07:43 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <jaQCf.202919$OU5.145706@clgrps13>
Source record: 64805

Ok Dan, glad you have gotten in working. Will try and get my program to sweep. As for the coil you can enter a helix by clicking on "Run", then "Geometry builder". I have not done anything with this feature, but it looks interesting.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43DBA321.7060902@comcast.net...
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995. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-28 20:44:53 UTC
From: DaveM <masondg4499@comcast99.net>
Message-ID: <7v6dnS7J9o9bSkbenZ2dnUVZ_vidnZ2d@comcast.com>
Source record: 64806

"Geoffrey S. Mendelson" <gsm@mendelson.com> wrote in message
news:slrndtnib5.v7g.gsm@cable.mendelson.com...
>I have an MFJ modle 249 (the original with a meter) antenna analyzer. MFJ
> sells a kit of two coils to make it into a dip meter.
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> I would like to use it to measure the resonant fequency of a traps I
> am building, but am unable to purchase the coils.
>
> Is there a way to make then on your own?
>
> TIA,
>
> Geoff.
>
> --
> Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
> IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice:
> 1-215-821-1838
> Vist my 'blog at http://geoffstechno.livejournal.com/

I think I have a spare set of coils for the MFJ-201 dip meter, missing only
the UHF coil. I don't know if the coils are the same for the 247, but if
you can verify that they are the same, maybe we can make a deal.

Email me if you're interested
--
Dave M
MasonDG44 at comcast dot net (Just substitute the appropriate characters in
the address)

Never take a laxative and a sleeping pill at the same time!!

996. repeater node numbers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 03:09:17 UTC
From: The Radio Expert <d.ocallaghan@iolfree.ie>
Message-ID: <drhbktjud1@reader01.news.esat.net>
Source record: 64807

Hey,

I am trying to find out the different Node numbers for repeaters worldwide. My local 2m repeater is enabled for gettin other repeaters worldwide as i have heard it beind done many times. Is there a website that has the numbers or would one of ye be kind enough to provide me with the info.

Thanks,
Chris

997. Re: repeater node numbers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 03:22:45 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43dc3525$0$14123$39cecf19@news.twtelecom.net>
Source record: 64808

The Radio Expert wrote:

> Hey,
>
> I am trying to find out the different Node numbers for repeaters worldwide.
> My local 2m repeater is enabled for gettin other repeaters worldwide as i
> have heard it beind done many times. Is there a website that has the numbers
> or would one of ye be kind enough to provide me with the info.
>
> Thanks,
> Chris
>
>
>

Node numbers? What are node numbers?

I am simple caveman radio operator, and know nothing of the "node
numbers". The repeater I use is at 145.45, negative offset.

tom
K0TAR

998. Re: repeater node numbers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 03:44:36 UTC
From: The Radio Expert <d.ocallaghan@iolfree.ie>
Message-ID: <drhdn4kjh1@reader01.news.esat.net>
Source record: 64809

Basically if your local repeater is connected to internet, you can dial a
Node for a repeater on the other side of the world. Like echo link just
without the computer.

73
Chris

"Tom Ring" <news0002@taring.org> wrote in message
news:43dc3525$0$14123$39cecf19@news.twtelecom.net...
> The Radio Expert wrote:
>
>> Hey,
>>
>> I am trying to find out the different Node numbers for repeaters
>> worldwide.
>> My local 2m repeater is enabled for gettin other repeaters worldwide as i
>> have heard it beind done many times. Is there a website that has the
>> numbers
>> or would one of ye be kind enough to provide me with the info.
>>
>> Thanks,
>> Chris
>>
>>
>>
>
> Node numbers? What are node numbers?
>
> I am simple caveman radio operator, and know nothing of the "node
> numbers". The repeater I use is at 145.45, negative offset.
>
> tom
> K0TAR

999. Re: repeater node numbers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 04:03:53 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <thfot1h7n3vao8fmakrs0quoojvlp66s5n@4ax.com>
Source record: 64810

On Sun, 29 Jan 2006 03:09:17 -0000, "The Radio Expert"
<d.ocallaghan@iolfree.ie> wrote:

>
>
>Hey,
>
>I am trying to find out the different Node numbers for repeaters worldwide.
>My local 2m repeater is enabled for gettin other repeaters worldwide as i
>have heard it beind done many times. Is there a website that has the numbers
>or would one of ye be kind enough to provide me with the info.
>

If you are referring to IRLP, try http://www.irlp.net/ .

>Thanks,
>Chris
>
>
--

1000. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 05:02:19 UTC
From: jpopelish@rica.net
Message-ID: <1138508998.736589.272440@z14g2000cwz.googlegroups.com>
Source record: 64811
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Phil Kane wrote:

> HUH???? I've designed enough communication site power
> installations to know that the battery powers the equipment and the
> function of the alternator in a vehicle or the rectifier (power
> supply, in ham language) in a fixed intsallation is to recharge the
> battery "on the fly", so to speak.

Sorry, I thought we were talking about a vehicle electrical system. In a vehicle, the battery serves essentially one purpose, to start the engine. After that, everything runs from the alternator, which also recharges the battery over a period of time.

> The current capacity of the
> battery is much greater than that os the charging device.

Are we talking about a transmitter that draws more current than an alternator can supply? If so, I think it is a poor arrangement. I wouldn't connect a transmitter that exceeded the output capability of the alternator, even if it meant I had to upgrade the alternator t oavoid it. I also wouldn't install a tranceiver in a vehicle without adding an RFI filter to the alternator. If it is too noisy to be connected as the power source, then it is too noisy to have connected to the wiring harness, in such proximity of a receiving antenna.

> Any design that puts the load on the charging device rather than on
> the battery would be rejected out of hand.

Not by me, it wouldn't.

> At best. both of them
> would be connectable (through switches or circuit breakers) to the
> load bus, with separate metering for the battery, the charger, and
> the load.

In the automobiles I have experience with, the alternator connects directly to the power distribution bus with one branch of that bus going to the battery, as the recharge path. The battery also has a heavy connection directly to the starter relay, to start the engine, independent of that distribution system. Connecting a big load, whether headlights or transmitter directly to the battery will lower the battery voltage slightly, so that it does not recharge fully. All loads should branch from the alternator output, where the voltage is regulated, including the battery charging branch.

> In your scheme the equipment would get no power when the alternator
> is not operating, or more clearly, if the equipment DOES get power,
> the power must be coming from the battery.
> Think about it.

I'm thinking about it. You are saying that the transmitter draws more current than an alternator can deliver, with the engine running, but you intend to operate it without the engine running. I hope you pack jumper cables. ;-)

1001. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 05:06:07 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehs3awhzz7000@cnews.newsguy.com>
Source record: 64812

Geoffrey S. Mendelson wrote:

> I have an MFJ modle 249 (the original with a meter) antenna analyzer.
> MFJ sells a kit of two coils to make it into a dip meter.
>
> I would like to use it to measure the resonant fequency of a traps I
> am building, but am unable to purchase the coils.
>
> Is there a way to make then on your own?
>
> TIA,
>
> Geoff.
~~~~~~

Don't bother. I have one and it's a very poor dip meter. Get a Heathkit
or Eico or Millen instead. You'll be much happier.

73, Bill W6WRT
~~~~~~

1002. Re: repeater node numbers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 06:01:32 UTC
From: Brian Kelly <kelly@dvol.com>
Message-ID: <1138513198.853727.260750@g43g2000cwa.googlegroups.com>
Source record: 64813

The Radio Expert wrote:
> Hey,
>
> I am trying to find out the different Node numbers for repeaters worldwide.
> My local 2m repeater is enabled for gettin other repeaters worldwide as i
> have heard it beind done many times. Is there a website that has the numbers
> or would one of ye be kind enough to provide me with the info.
>
> Thanks,
> Chris

Kindly note that this NG is about ANTENNAS.

Thank you.

w3rv

1003. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 06:50:28 UTC
From: dplatt@radagast.org
Message-ID: <11topdk759a3tba@corp.supernews.com>
Source record: 64814

>> I have an MFJ modle 249 (the original with a meter) antenna analyzer.
>> MFJ sells a kit of two coils to make it into a dip meter.
>>
>> I would like to use it to measure the resonant fequency of a traps I
>> am building, but am unable to purchase the coils.
>>
>> Is there a way to make then on your own?

>Don't bother. I have one and it's a very poor dip meter. Get a Heathkit
>or Eico or Millen instead. You'll be much happier.

The MFJ 269 with the dip-meter coils, is probably the least-sensitive and least-usable dipmeter I've tried to date. It really isn't good for very much at all.

I don't think the coil construction is terribly critical, though, since the coil inductance is not being used as part of the oscillator tuned circuit. The MFJ uses only two coils to cover a wide range of frequencies, rather than the half-dozen or so coils used by real tank-circuit dippers.

You can try simply winding a few turns of hookup wire on a convenient tubular form, hooked up to an RCA or BNC or PL-259 glued to the end of the form, and see if you can get an adequate dipping for your purposes.

The higher-frequency MFJ coil seems to be about 4 or 5 turns of wire - length is about 1/2" and diameter is somewhere around 3/8". The lower-frequency coil is somewhere around 12-14 turns of wire, close-wound on a 1/2"-diameter plastic form.

As dippers go, the Heathkit HD-1250 solid-state model (it's a dual-gate-MOSFET-based gate-dipper rather than a grid-dipper) is better than the MFJ. It's not great, but it's probably adequate for most purposes.

Haven't used a Millen but I've heard that it's better yet. Haven't used an Eico, or one of the B&W model 600 acorn-tube-based grid dippers.

The Measurements/Boonton Megacycle Meter is the ne plus ultra of dippers, as far as I know. It's big and perhaps a trifle clumsy, but it has a strong oscillator which *really* dips nicely with even very loose coupling to the circuit being measured. If you ever run across one, grab it.

For comparison: when testing an air-core inductor in parallel with an air-variable cap, I could barely get a dip reading at all with my MFJ and either of its coils. The coil had to be poked right up into the inductor and into contact with its windings to create enough coupling for a dip... and of course this tends to de-tune the coil and makes the measurement less accurate.

A Heathkit HD-1250 would get a usable dip with its coil as far as an inch away from the inductor.

A Boonton got a dip three or four inches away.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will boycott any company which has the gall to send me such ads!

1004. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 08:41:05 UTC
From: gsm@mendelson.com
Message-ID: <slrndtovdr.m07.gsm@cable.mendelson.com>
Source record: 64815

Bill Turner wrote:

> Don't bother. I have one and it's a very poor dip meter. Get a Heathkit
> or Eico or Millen instead. You'll be much happier.

Thanks for the information. The whole purpose is to avoid paying 180 UKP
for a multiband trap antenna. I have access to coax and plastic pipe,
so I was hoping to make the traps myself.

As for buying an Eico or Millen, I doubt that there is one in the entire
country yet alone for sale, :-(

73,

Geoff.

--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Vist my 'blog at http://geoffstechno.livejournal.com/

1005. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 08:51:04 UTC
From: gsm@mendelson.com
Message-ID: <slrndtp01a.m07.gsm@cable.mendelson.com>
Source record: 64816

Dave Platt wrote:
> The MFJ 269 with the dip-meter coils, is probably the least-sensitive
> and least-usable dipmeter I've tried to date. It really isn't good
> for very much at all.

Thanks,

Hopefully it won't have to be very good. I need it to make a trap antenna, I found what I want for 180 UKP (plus shipping and taxes), but simply can't afford it. In fact, buying the $20 coils is a stretch at this time.

I have plenty of coax and plastic pipe is easily available.

> I don't think the coil construction is terribly critical, though,
> since the coil inductance is not being used as part of the oscillator
> tuned circuit. The MFJ uses only two coils to cover a wide range of
> frequencies, rather than the half-dozen or so coils used by real
> tank-circuit dippers.

It did seem awfuly cheap, the same range in their dip meter was covered by at least five coils.

> You can try simply winding a few turns of hookup wire on a convenient
> tubular form, hooked up to an RCA or BNC or PL-259 glued to the end of
> the form, and see if you can get an adequate dipping for your
> purposes.

Ok, thanks, it may be exactly what I need.

> The higher-frequency MFJ coil seems to be about 4 or 5 turns of wire -
> length is about 1/2" and diameter is somewhere around 3/8". The
> lower-frequency coil is somewhere around 12-14 turns of wire,
> close-wound on a 1/2"-diameter plastic form.

This sounds good to me, I should be able to duplicate that.

> As dippers go, the Heathkit HD-1250 solid-state model (it's a
> dual-gate-MOSFET-based gate-dipper rather than a grid-dipper) is
> better than the MFJ. It's not great, but it's probably adequate for
> most purposes.

Heathkit? What's a heathkit? I have not seen one in the nine years I've been here. A friend supposedly has a heathkit HF rig in boxes from when he moved here, 25 years ago, I'm sure he hasn't even turned them on in at least five years.

> The Measurements/Boonton Megacycle Meter is the ne plus ultra of
> dippers, as far as I know. It's big and perhaps a trifle clumsy, but

> it has a strong oscillator which *really* dips nicely with even very
> loose coupling to the circuit being measured. If you ever run across
> one, grab it.

In a country there are no hamfest, no swap meets, no ham radio stores,
and you need to get permission from the Ministry of Communication to
buy a new rig (pro-forma, but it must be added to your license),
I expect that I'll never run across one, even if I hunt it down. :-(

73,

Geoff.
--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Vist my 'blog at http://geoffstechno.livejournal.com/

1006. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 11:19:32 UTC
From: on4ahf <hh1@telenet.be>
Message-ID: <8x1Df.217991$4Q6.7157867@phobos.telenet-ops.be>
Source record: 64817

Hi Geoff

here manual with description for homemade coils

http://www.darc.de/distrikte/f/27/MFJ259B_SWR584B_Handbuch1v4.pdf

73 Henk

1007. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 11:19:32 UTC
From: on4ahf <hh1@telenet.be>
Message-ID: <8x1Df.217992$wF4.7143563@phobos.telenet-ops.be>
Source record: 64818

Hi Geoff

here manual with description for homemade coils

http://www.darc.de/distrikte/f/27/MFJ259B_SWR584B_Handbuch1v4.pdf

73 Henk

1008. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 12:27:17 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehsrj0scs4000@cnews.newsguy.com>
Source record: 64821

Geoffrey S. Mendelson wrote:

> As for buying an Eico or Millen, I doubt that there is one in the
> entire country yet alone for sale, :-(
~~~~~~

Try eBay.

73, Bill W6WRT
~~~~~~

1009. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 12:30:04 UTC
From: gsm@mendelson.com
Message-ID: <slrndtpcq3.p2j.gsm@cable.mendelson.com>
Source record: 64820

on4ahf wrote:
> Hi Geoff
>
> here manual with description for homemade coils
>
> http://www.darc.de/distrikte/f/27/MFJ259B_SWR584B_Handbuch1v4.pdf

Thank you, it's exactly what I needed. I am having trouble with one point.

The wire type in the table is CuL and CuAg. Obviously CuL some sort of
copper wire, with the CuAg, being copper and silver (silver plated copper?).

What exactly is CuL wire? Is it critical that I use it what ever it is?
Can I use plastic covered copper wire?

For the high freqency coils I can easily get 2.0mm stiff copper
wire for use in electrical conduit. It comes with some sort of insulation,
probably PVC. Can I use it, and if I do, should I remove the insulation?

Thanks in advance,

Geoff.

--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Vist my 'blog at http://geoffstechno.livejournal.com/

1010. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 12:31:00 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehsrmax1l5001@cnews.newsguy.com>
Source record: 64823
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:

> Are we talking about a transmitter that draws more current than an
> alternator can supply? If so, I think it is a poor arrangement. I
> wouldn't connect a transmitter that exceeded the output capability of
> the alternator, even if it meant I had to upgrade the alternator t
> oavoid it.
~~~~~~

Really? Then you should have an alternator which could supply the
starter motor too, with that thinking.

The battery is there as a power source for intermittent loads. Use it.

73, Bill W6WRT
~~~~~~

1011. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 12:33:31 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehsrom10dne002@cnews.newsguy.com>
Source record: 64824
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:

> Sorry, I thought we were talking about a vehicle electrical system.
> In a vehicle, the battery serves essentially one purpose, to start the
> engine. After that, everything runs from the alternator, which also
> recharges the battery over a period of time.
~~~~~~

Have you ever driven a car with a totally dead battery, after starting
it with jumper cables and running entirely off the alternator? I have
and it's not good. The battery is there for more than just starting the
car. It also stores and smoothes the output from the alternator, much
like a giant filter capacitor. Don't be afraid to use it as such.

73, Bill W6WRT
~~~~~~

1012. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 12:54:21 UTC
From: on4ahf <hh1@telenet.be>
Message-ID: <1W2Df.218148$Gj7.7167022@phobos.telenet-ops.be>
Source record: 64822

> The wire type in the table is CuL and CuAg. Obviously CuL some sort of
> copper wire, with the CuAg, being copper and silver (silver plated
> copper?).

--------------lacquer-isolated copper wire (CuL), ------------
----------------copper-silver (CuAg), -------------

> What exactly is CuL wire? Is it critical that I use it what ever it is?
> Can I use plastic covered copper wire?
----------no--------------
>
> For the high freqency coils I can easily get 2.0mm stiff copper
> wire for use in electrical conduit. It comes with some sort of insulation,
> probably PVC. Can I use it, and if I do, should I remove the insulation?

--------------Yes---------------

1013. Re: Homemade coils for using an MFJ analyzer as a dip meter?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 15:55:38 UTC
From: David J Windisch <davidjw@cinci.rr.com>
Message-ID: <_z5Df.70633$Q11.7004@tornado.ohiordc.rr.com>
Source record: 64825

Geoff and all:
The 'dip' function is simply a 2- or 3-to-1 series-connected mismatch with a capacitor, resistor, and coil to couple to the device-under-test. The dut makes the meter wiggle by absorbing a bit of power, for a visible indication of 'resonance'. That's all, afaik.
73, Dave, N3HE

"Geoffrey S. Mendelson" <gsm@mendelson.com> wrote in message news:slrndtnib5.v7g.gsm@cable.mendelson.com...
>I have an MFJ modle 249 (the original with a meter) antenna analyzer. MFJ
> sells a kit of two coils to make it into a dip meter.
>
> I would like to use it to measure the resonant fequency of a traps I
> am building, but am unable to purchase the coils.
>
> Is there a way to make then on your own?
>
> TIA,
>
> Geoff.
>
> --
> Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
> IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice:
> 1-215-821-1838
> Vist my 'blog at http://geoffstechno.livejournal.com/

1014. help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 16:45:43 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <T_WdndNuJIahbEHeRVn-tQ@comcast.com>
Source record: 64828

All,

I am experimenting with 4nec2 and these are an elementary questions. I have been able to create a 'new' model, see below, using the geometry editor. Here are few questions:

1. when the model loads it shows 4 MHz instead of 144.

2. ground has been set but does not show in the display

3. I am trying to make the middle segment a coil. How is a coil created? When inserting a helix 4nec2 errors with a divide by zero error? The steps would be helpful.

4. Adding a source does not seem to take. I am not sure how how to add a source? How to determine where it is placed?

These are basic, but any help would be appreciated.

Thanks - Dan

```
CE
GW 1 3 0.05 0 2.2204e-16 0.05 0 0.1
1.29409e-3
GW 2 3 0.05 0 0.225 0.05 0 0.125 1.29409e-3
GW 3 1 0.05 0 0.125 0.05 0 0.1 1.29409e-3
GE 1
EK
GN 2 0 0 0 13 6.e-3
FR 0 1 0 0 144 0
EN
```

1015. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 16:47:21 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <coudnUcuTscabUHeRVn-rg@adelphia.com>
Source record: 64826
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Bill Turner wrote:
> jpopelish@rica.net wrote:
>
>
>>Are we talking about a transmitter that draws more current than an
>>alternator can supply? If so, I think it is a poor arrangement. I
>>wouldn't connect a transmitter that exceeded the output capability of
>>the alternator, even if it meant I had to upgrade the alternator t
>>oavoid it.
>
> ~~~~~~
>
> Really? Then you should have an alternator which could supply the
> starter motor too, with that thinking.
>
> The battery is there as a power source for intermittent loads. Use it.

I described the separate wiring that allows large current draw from
the battery, intermittently, for starting.

Of course, you can use the battery in ways the auto manufacturer did
not intend. If you want to run a radio for long periods with the
motor off, you can expect the battery life to be shortened, though.
Auto batteries are not deep cycle designs.

1016. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 16:48:40 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <coudnUYuTsdLbUHeRVn-rg@adelphia.com>
Source record: 64827
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Bill Turner wrote:
> jpopelish@rica.net wrote:
>
>
>>Sorry, I thought we were talking about a vehicle electrical system.
>>In a vehicle, the battery serves essentially one purpose, to start the
>>engine. After that, everything runs from the alternator, which also
>>recharges the battery over a period of time.
>
> ~~~~~~
>
> Have you ever driven a car with a totally dead battery, after starting
> it with jumper cables and running entirely off the alternator? I have
> and it's not good. The battery is there for more than just starting the
> car. It also stores and smoothes the output from the alternator, much
> like a giant filter capacitor. Don't be afraid to use it as such.

Agreed. But I prefer to design and install my own alternator RFI
filter, rather than depend on the battery for that purpose.

1017. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 17:40:14 UTC
From: jpopelish@rica.net
Message-ID: <1138556414.231655.305980@f14g2000cwb.googlegroups.com>
Source record: 64830
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:

> When the engine is running, what is the difference between the
> voltage at the alternator and the voltage at the battery?

The difference is the IR drop of the branch circuit from the power bus to the battery positive, including the fuse link in the harness.

Loading the battery for long periods when the alternator is running is likely (if the regulation point is at the power bus, not at the positive battery ternminal) to result in an under charged battery.

If the regulation point is the battery positive terminal, then the voltage at the distribution bus point will be pushed up to compensate for the unexpected IR drop in the battery branch, and will shorten the life of headlight and other bulbs. (The charging systen is designed so that the battery is normally recharged at a rather modest rate, not at the full alternator output capability.) This is a reason why the regulation point is usually at the distribution bus, not at the battery terminal.

1018. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 17:40:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <767Df.29208$PL5.1624@newssvr11.news.prodigy.com>
Source record: 64829
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

John Popelish wrote:
> Agreed. But I prefer to design and install my own alternator RFI
> filter, rather than depend on the battery for that purpose.

When the engine is running, what is the difference between the
voltage at the alternator and the voltage at the battery?
--
73, Cecil http://www.qsl.net/w5dxp

1019. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 18:42:41 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0eht1e33ts5a000@cnews.newsguy.com>
Source record: 64831
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:

> When the engine is running, what is the difference between the
> voltage at the alternator and the voltage at the battery?
~~~~~~

Depends on whether the battery is fully charged or not. Immediately after starting the engine, the voltage difference will be at its greatest. After a few minutes running, the difference will be very small, unless a large current drain is occurring.

In other words, there is no single answer.

73, Bill W6WRT
~~~~~~

1020. A Space Suit with a 145.990MHz FM transceiver!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 20:03:11 UTC
From: CQ <geenmail@geenmail.net>
Message-ID: <43dbce01$0$12832$ba620dc5@text.nova.planet.nl>
Source record: 64804

Hello All,

At Friday 3 februari 2006 will be SUITSAT launched -
from out of the ISS Space Station into space.
In the Space Suit is a a transceiver which send voice
greetings in various languages.
Also SSTV pictures (mode: robot 36) will be send
down to earth.
For those who received the SUISAT signals can
request a special certificate!

Probably you can receive Suit Sat with a simple GP vertical.
Better is an yagi (or trie both to switch).
I hope amateurs will report here how strong they receive
the suitsat signals (and what antenna you have used).

More info you can see on:
http://pd0rkc.ontwikkel.nl

Please publish this message on websites (unique event!).

73's Cor PD0RKC

1021. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 20:30:38 UTC
From: WS4V <"ken area-net.com">
Message-ID: <Tf-dnWxAJNNDuEDeRVn-rA@adelphia.com>
Source record: 64832

Until I put up a Diamond 4 element yagi I used a G5RV through a tuner for
about 2 months and worked 30+ grids with 10 watts from a Kenwood TS-660. I
couldn't believe it but when 6 is open you can work stations with anything
short of a well shielded dummy load.
73,
Ken

"an old friend" <kb9rqz@yahoo.com> wrote in message
news:1138059456.579317.228830@o13g2000cwo.googlegroups.com...
> having lost the support on my 6m beam and haing a turner able to tune a
> random wire I have decided totry it
>
> since i don't know I will like it id rather avoid cutting this nice
> piece of wire
>
> thinking about unwiding some wire from a 1/2 mile spool anythoungts on
> howmuch and what happens if I don't cut it off the spool(just unwind
> 10ft fifty or whatever leaving one large inducer on the end of the
> "antenna
>

1022. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 21:11:43 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <jcaDf.125097$m05.38695@clgrps12>
Source record: 64833

One comment Dan, you have defined a finite Sommerfeld/Norton ground. In NEC2 the antenna cannot touch the ground unless it is perfect (Unlike EZnec, with its "Minninec" ground). 2.2204e-16 is, from NEC's point of view, zero. At the moment I don't know how to address the other problems, but may play with it later. I have also noticed the problem with the frequencies.

There are instructions provided with the program, but are buried as "Word", and text, documents in the 4Nec2 folder,and in the sub-folder "exe". The NEC user manual is also useful, but will only help with NEC code structure.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:T_WdndNuJIahbEHeRVn-tQ@comcast.com...
> All,
>
> I am experimenting with 4nec2 and these are an elementary questions. I
> have been able to create a 'new' model, see below, using the geometry
> editor. Here are few questions:
>
> 1. when the model loads it shows 4 MHz instead of 144.
>
> 2. ground has been set but does not show in the display
>
> 3. I am trying to make the middle segment a coil. How is a coil created?
> When inserting a helix 4nec2 errors with a divide by zero error? The steps
> would be helpful.
>
> 4. Adding a source does not seem to take. I am not sure how how to add a
> source? How to determine where it is placed?
>
> These are basic, but any help would be appreciated.
>
> Thanks - Dan
>
> CE
> GW 1 3 0.05 0 2.2204e-16 0.05 0
> 0.1 1.29409e-3
> GW 2 3 0.05 0 0.225 0.05 0 0.125
> 1.29409e-3
> GW 3 1 0.05 0 0.125 0.05 0 0.1
> 1.29409e-3
> GE 1
> EK
> GN 2 0 0 0 13 6.e-3

```
> FR 0 1 0 0 144 0
> EN
```

1023. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 21:21:02 UTC
From: Phil Kane <Phil.Kane@nov.shmovz.ka.pop>
Message-ID: <cuvyxnansvbet.itv9n28.pminews@newsgroups.comcast.net>
Source record: 64835
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

On Sun, 29 Jan 2006 11:48:40 -0500, John Popelish wrote:

>Agreed. But I prefer to design and install my own alternator RFI
>filter, rather than depend on the battery for that purpose.

The battery is not there to filter RFI - it's there to smooth out
any ripples in the rectified but unfiltered alternator output in the
AF range. AFAIK no automotive alternator has any internal filtering,
and the battery is the best way to provide that filtering as compared
to conventional lumped-constant LC filters.

--
73 de K2ASP - Phil Kane

1024. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 21:29:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ctaDf.15208$_S7.3112@newssvr14.news.prodigy.com>
Source record: 64834
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:
> The difference is the IR drop of the branch circuit from the power bus
> to the battery positive, including the fuse link in the harness.

I knew that - what is the *quantitative* difference between the
voltage at the alternator and the voltage at the battery?
--
73, Cecil http://www.qsl.net/w5dxp

1025. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 22:11:46 UTC
From: jpopelish@rica.net
Message-ID: <1138572706.181945.314800@f14g2000cwb.googlegroups.com>
Source record: 64837
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:
> jpopelish@rica.net wrote:
> > The difference is the IR drop of the branch circuit from the power bus
> > to the battery positive, including the fuse link in the harness.
>
> I knew that - what is the *quantitative* difference between the
> voltage at the alternator and the voltage at the battery?

How am I to know either the branch wiring resistance between the
alternator and the battery in your car, or the current you intend to
draw from the battery while the alternator is running? Some have been
talking about drawing more current than the alternator can supply.

1026. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 22:13:09 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <QMudnUw8nrF-oUDenZ2dnUVZ_tqdnZ2d@adelphia.com>
Source record: 64836
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Phil Kane wrote:
> On Sun, 29 Jan 2006 11:48:40 -0500, John Popelish wrote:
>
>
>>Agreed. But I prefer to design and install my own alternator RFI
>>filter, rather than depend on the battery for that purpose.
>
>
> The battery is not there to filter RFI - it's there to smooth out
> any ripples in the rectified but unfiltered alternator output in the
> AF range. AFAIK no automotive alternator has any internal filtering,
> and the battery is the best way to provide that filtering as compared
> to conventional lumped-constant LC filters.

The battery is definitely a part of any alternator filter. But putting a good high frequency capacitor right on the alternator output terminal to the case, and an inductor rated for full alternator output current between the alternator and distribution system (to which the battery is connected) and a second RF bypass at the distribution branching point, back to the alternator case, to block any RF leakage exiting the transceiver supply leads from getting out into the wiring harness, provides a huge reduction of rectifier recovery generated RF (through both the transceiver power leads and from direct radiation from the wiring harness) and 3 phase rectification generated ripple.

That is my run on sentence for today.

The battery is the low frequency part of the output capacitor in this pi filter.

It just seems strange to me to invest all that money in a powerful transceiver and a custom installation and skip these three vital parts.

1027. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-29 22:38:49 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43DD43F9.309@comcast.net>
Source record: 64838

Frank,

I have made some progress. The trick for adding new source and RLC objects is to select them and then to click, hold, and drag to position. The value option box opens up for setting.

The current model does not sweep frequencies. Have you figured out how to sweep frequencies?

So far these are normal teething problems for a new app. Thanks - Dan

Frank wrote:
> One comment Dan, you have defined a finite Sommerfeld/Norton ground. In
> NEC2 the antenna cannot touch the ground unless it is perfect (Unlike EZnec,
> with its "Minninec" ground). 2.2204e-16 is, from NEC's point of view, zero.
> At the moment I don't know how to address the other problems, but may play
> with it later. I have also noticed the problem with the frequencies.
>
> There are instructions provided with the program, but are buried as "Word",
> and text, documents in the 4Nec2 folder,and in the sub-folder "exe". The
> NEC user manual is also useful, but will only help with NEC code structure.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:T_WdndNuJIahbEHeRVn-tQ@comcast.com...
>
>>All,
>>
>>I am experimenting with 4nec2 and these are an elementary questions. I
>>have been able to create a 'new' model, see below, using the geometry
>>editor. Here are few questions:
>>
>>1. when the model loads it shows 4 MHz instead of 144.
>>
>>2. ground has been set but does not show in the display
>>
>>3. I am trying to make the middle segment a coil. How is a coil created?
>>When inserting a helix 4nec2 errors with a divide by zero error? The steps
>>would be helpful.
>>
>>4. Adding a source does not seem to take. I am not sure how how to add a
>>source? How to determine where it is placed?
>>

>>These are basic, but any help would be appreciated.
>>
>>Thanks - Dan
>>
>>CE
>>GW 1 3 0.05 0 2.2204e-16 0.05 0
>>0.1 1.29409e-3
>>GW 2 3 0.05 0 0.225 0.05 0 0.125
>>1.29409e-3
>>GW 3 1 0.05 0 0.125 0.05 0 0.1
>>1.29409e-3
>>GE 1
>>EK
>>GN 2 0 0 0 13 6.e-3
>>FR 0 1 0 0 144 0
>>EN
>
>
>

1028. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 00:39:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <xfdDf.5451$2O6.3805@newssvr12.news.prodigy.com>
Source record: 64839
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:
> How am I to know either the branch wiring resistance between the
> alternator and the battery in your car, ...

Sorry, you sounded like an expert on such.
--
73, Cecil http://www.qsl.net/w5dxp

1029. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 01:38:44 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <NYOdnbB1pMmP8EDenZ2dnUVZ_t6dnZ2d@adelphia.com>
Source record: 64840
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:
> jpopelish@rica.net wrote:
>
>> How am I to know either the branch wiring resistance between the
>> alternator and the battery in your car, ...
>
> Sorry, you sounded like an expert on such.

I apologize for giving you that false impression.
This group appears loaded with those, and has no need for another.
I was being a person who had an opinion for some particular and stated
reasons, and was challenging this group to show me my mistakes.

No joy, so far.

What I have gotten is lots of "Thats not the way we do it.", "That's
not the way the experts say to do it." "You are wrong." and "I know
more than you do."

But back to your question, I assumed that you are qualified to measure
the wiring resistance between your alternator and battery and also
calculate (or read the manual for) the supply current of your radio,
and know ohm's law. So you should be able to tell me the difference
in the voltage between your alternator and battery. You might also
estimate what the ampacity of that branch wire (with fusible link) is,
based on the wire gauge of the link. If that current is anything near
your radio's draw, you might worry about operating your radio through
that link, especially right after starting the engine, when the
battery is recharging through it, also. Replacing that piece of wire
is an onerous task in many cars.

1030. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 01:48:07 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehtcl33e3rw000@cnews.newsguy.com>
Source record: 64841
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

John Popelish wrote:

> It just seems strange to me to invest all that money in a powerful
> transceiver and a custom installation and skip these three vital
> parts.
~~~~~~

"Vital" only if you have a noise problem. I haven't in my last three or four cars. The alternators were perfect gentlemen.

73, Bill W6WRT
~~~~~~

1031. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 02:16:32 UTC
From: jpopelish@rica.net
Message-ID: <1138587392.626611.200350@f14g2000cwb.googlegroups.com>
Source record: 64842
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Bill Turner wrote:
> John Popelish wrote:
>
> > It just seems strange to me to invest all that money in a powerful
> > transceiver and a custom installation and skip these three vital
> > parts.
> ~~~~~~
>
> "Vital" only if you have a noise problem. I haven't in my last three or
> four cars. The alternators were perfect gentlemen.

So nice for you!

Well, that is one hypothetical problem with my suggestion that doesn't
apply to those 3 or 4 vehicles. Perhaps car makers have had to reduce
alternator noise (e.g. use soft recovery diode bridges) to serve the
built in receivers and all the other electronics.

1032. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 04:06:45 UTC
From: richardharrison@webtv.net
Message-ID: <6543-43DD90D5-837@storefull-3252.bay.webtv.net>
Source record: 64843

John Poplish wrote:
"So nice for you!"

Alternator whine is often caused by a bad diode.Replacement(s) may be the most satisfactory fix.

Best regards, Richard harrison, KB5WZI

1033. Re: A Space Suit with a 145.990MHz FM transceiver!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 04:19:51 UTC
From: TimPerry <timperry@noaspamadelphia.net>
Message-ID: <JaSdna0jWrWSCUDenZ2dnUVZ_tmdnZ2d@adelphia.com>
Source record: 64844

"CQ" <geenmail@geenmail.net> wrote in message
news:43dbce01$0$12832$ba620dc5@text.nova.planet.nl...
> Hello All,
>
> At Friday 3 februari 2006 will be SUITSAT launched -
> from out of the ISS Space Station into space.
> In the Space Suit is a a transceiver which send voice
> greetings in various languages.
> Also SSTV pictures (mode: robot 36) will be send
> down to earth.
> For those who received the SUISAT signals can
> request a special certificate!
>
> Probably you can receive Suit Sat with a simple GP vertical.
> Better is an yagi (or trie both to switch).
> I hope amateurs will report here how strong they receive
> the suitsat signals (and what antenna you have used).
>
> More info you can see on:
> http://pd0rkc.ontwikkel.nl
>
> Please publish this message on websites (unique event!).
>
> 73's Cor PD0RKC
>

we need a orbital greeting generator? why don't you just send out cards
with a piezo and a audio chip in it?

1034. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 05:23:00 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <2l8rt1pobob8lojd1ujsb9md1qndatmq04@4ax.com>
Source record: 64845
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

On Sun, 29 Jan 2006 20:38:44 -0500, John Popelish <jpopelish@rica.net>
wrote:

>Cecil Moore wrote:
>> jpopelish@rica.net wrote:
>>
>>> How am I to know either the branch wiring resistance between the
>>> alternator and the battery in your car, ...
>>
>> Sorry, you sounded like an expert on such.
>
>I apologize for giving you that false impression.
>This group appears loaded with those, and has no need for another.
>I was being a person who had an opinion for some particular and stated
>reasons, and was challenging this group to show me my mistakes.
>
>No joy, so far.
>
>What I have gotten is lots of "Thats not the way we do it.", "That's
>not the way the experts say to do it." "You are wrong." and "I know
>more than you do."
>
>But back to your question, I assumed that you are qualified to measure
>the wiring resistance between your alternator and battery and also
>calculate (or read the manual for) the supply current of your radio,
>and know ohm's law. So you should be able to tell me the difference
>in the voltage between your alternator and battery. You might also
>estimate what the ampacity of that branch wire (with fusible link) is,
>based on the wire gauge of the link. If that current is anything near
>your radio's draw, you might worry about operating your radio through
>that link, especially right after starting the engine, when the
>battery is recharging through it, also. Replacing that piece of wire
>is an onerous task in many cars.

I have never seen it recommended to connect a radio to anywhere but at
the battery terminals. Even if the radio were to be connected to a
junction box designed for this purpose some distance from the battery
you never want the alternator to connect to that same junction. Having
anything connected to the wire carrying alternator current will induce
noise into that power line due to the resistance of the alternator
charging wire.

Most wires coming from the alternator to the battery are rather small,
#10 or #8 wire at best. There is significant voltage drop in that

wire. The noise from the alternator is not just from the average current causing a voltage drop but from the peak current which is much higher.

Every time you turn on the headlights the noise will get worse if the radio is connected directly to the alternator because of additional voltage drop on that line.
If there should be a break in the alternator wire to the battery the surge from the alternator will most likely damage the radio.

The alternator regulator most likely would not be able to handle the rapidly changing load of an SSB radio smoothly causing additional spikes as it tries to regulate.

Need more reasons? :>)

73
Gary K4FMX

1035. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 05:42:03 UTC
From: dplatt@radagast.org
Message-ID: <11tr9pbg3um4u93@corp.supernews.com>
Source record: 64846
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

In article <2l8rt1pobob8lojd1ujsb9md1qndatmq04@4ax.com>,
Gary Schafer <gaschafer@comcast.net> wrote:

>Every time you turn on the headlights the noise will get worse if the
>radio is connected directly to the alternator because of additional
>voltage drop on that line.
>If there should be a break in the alternator wire to the battery the
>surge from the alternator will most likely damage the radio.

A more common problem I'd be concerned about would be "load dump",
which occurs when a high-amperage load on the car's electrical bus
stops drawing current abruptly - for example, if the headlights are
switched off while the engine's running. It's common for this to
result in a large voltage spike out of the alternator, before the
regulator has time to reduce the alternator output. Spikes of several
dozen volts are common - my recollection is that auto-electronics
manufacturers engineer their devices to be able to stand 50 volts at
their power-supply terminals for a brief moment.

I would expect that the magnitude of this spike would be significantly
greater at the alternator terminals, than it is at the battery, due to
the series resistance and series inductance of the battery-to-
alternator cable, and the battery's low impedance. It's possible that
a load (e.g. radio) which could survive a load-dump spike if wired to
the battery, could be damaged by a higher-amplitude spike from the
same load-dump event which might occur right at the alternator.

It seems clear that the standard, recommended practice is to wire
radios to the battery. It also seems that the original poster is not
satisfied with the justification for this practice (either by
convention, recommendation of authority, or theoretical arguments
posed to far), and that he has some arguments from first principles
which he feels justify a different approach (wiring to the alternator).

In the end, for the original poster to be satisfied (either that
standard practice is the best practice, or that his alternate
suggestion of wiring directly across the alternator is actually
superior) I suspect that he's going to have to fall back on that old
mainstay of scientific discovery - he's going to have to experiment.

He'll have to wire several different radios, of various makes and
models, up to [1] a double-fused heavy-gauge feed from the battery
posts, and [2] an equivalent feed brought back to alternator and its
ground. He can then determine whether his alternate approach actually
delivers more useful current to the radio, whether the transmitter

powers are actually higher, whether there is indeed more alternator whine or RFI on the transmitted signal or the received audio, and whether the radios show any differential in their ability to survive a few months of usage and load-dump spikes without losing their Magic Blue Smoke.

Actual results (either way) trump speculative arguments.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will boycott any company which has the gall to send me such ads!

1036. Re: need advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 06:24:51 UTC
From: "Mike M." <notme@invalid.email.net>
Message-ID: <32crt1ln35s75ld4qvddmi963gki9i657u@4ax.com>
Source record: 64847

On Fri, 27 Jan 2006 22:24:49 -0600, "don" <wxfreqrs@cableone.net>
wrotF:

>will check it out
>thinking of hustler Model CGT-144

If you are going to mount it on a mast, you might want the
groundplane radial kit.

Mike kc9doa

1037. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 06:55:18 UTC
From: CLFE <Junkmail@clfurent.com>
Message-ID: <43ddb851$0$25063$ecde5a14@news.coretel.net>
Source record: 64848
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

"Dave Platt" <dplatt@radagast.org> wrote in message
news:11tr9pbg3um4u93@corp.supernews.com...
> In article <2l8rt1pobob8lojd1ujsb9md1qndatmq04@4ax.com>,
> Gary Schafer <gaschafer@comcast.net> wrote:
>
>>Every time you turn on the headlights the noise will get worse if the
>>radio is connected directly to the alternator because of additional
>>voltage drop on that line.
>>If there should be a break in the alternator wire to the battery the
>>surge from the alternator will most likely damage the radio.
>
> A more common problem I'd be concerned about would be "load dump",
> which occurs when a high-amperage load on the car's electrical bus
> stops drawing current abruptly - for example, if the headlights are
> switched off while the engine's running. It's common for this to
> result in a large voltage spike out of the alternator, before the
> regulator has time to reduce the alternator output. Spikes of several
> dozen volts are common - my recollection is that auto-electronics
> manufacturers engineer their devices to be able to stand 50 volts at
> their power-supply terminals for a brief moment.
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> I would expect that the magnitude of this spike would be significantly
> greater at the alternator terminals, than it is at the battery, due to
> the series resistance and series inductance of the battery-to-
> alternator cable, and the battery's low impedance. It's possible that
> a load (e.g. radio) which could survive a load-dump spike if wired to
> the battery, could be damaged by a higher-amplitude spike from the
> same load-dump event which might occur right at the alternator.
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> radios to the battery. It also seems that the original poster is not
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> convention, recommendation of authority, or theoretical arguments
> posed to far), and that he has some arguments from first principles
> which he feels justify a different approach (wiring to the alternator).
>
> In the end, for the original poster to be satisfied (either that
> standard practice is the best practice, or that his alternate
> suggestion of wiring directly across the alternator is actually
> superior) I suspect that he's going to have to fall back on that old
> mainstay of scientific discovery - he's going to have to experiment.
>
> He'll have to wire several different radios, of various makes and

> models, up to [1] a double-fused heavy-gauge feed from the battery
> posts, and [2] an equivalent feed brought back to alternator and its
> ground. He can then determine whether his alternate approach actually
> delivers more useful current to the radio, whether the transmitter
> powers are actually higher, whether there is indeed more alternator
> whine or RFI on the transmitted signal or the received audio, and
> whether the radios show any differential in their ability to survive a
> few months of usage and load-dump spikes without losing their Magic
> Blue Smoke.
>
> Actual results (either way) trump speculative arguments.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

I know of a guy who had an HF radio fry when the voltage to it exceeded 16 VDC - not once, but twice - doing some major damage (a few parts and lots of dollars). He didn't know what caused it the first time to protect it before the second. He thought it was just a fluke (the first time). The point is, anything beyond the rated 13.8 was running a risk - even if accidental. And as argued in previous posts, the whine coming straight from the mother of it - has to be a bear.

I would like to know - where this idea hails from - to begin with, how long "John" has been doing it, how many radios and/or alternators fried from it.

Also, I don't think any or all of us are saying we're all right and you - "John" - are all wrong. It just seems NONE OF US - have ever heard of this being done. WHERE - what book, teacher, etc - got you on the track of doing it this way???? We just all (except you) seem to be in agreement with the way "we" were taught. Maybe you could think of it as say - John Glenn explaining flying a rocket to a cave man. The concept new - unheard of. Not that it hasn't been done - you've said so yourself, ya got to be a good "salesman" to get it across to the masses who've yet to see. You have to know - anything "new" - be it a new drug to fight disease, technique to do surgery quicker and less painless - or Electronics techniques or measurements - will meet resistance until proven.

Maybe - if any of you out there have access to a junk car that runs yet, and you're not afraid to experiment, can grab some junk (but working CBs/2 way radios) - give it a whirl and report back with your own test results. As Dave Platt said in the post above - "Actual results (either way) trump speculative arguments."
I don't have a junk car to try it with..... Maybe I'll go to a junk yard and try to pick one up cheap..... try it a few times. I'd love to see how this works - maybe I can become a believer.

clf

1038. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 08:42:48 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138610568.326958.241300@f14g2000cwb.googlegroups.com>
Source record: 64849

Hello Dan,

to sweep frequencies after having modified or created your model, push F7, select 'use freq-loop', select one of the options 'Gain' (only Gain, F/B and F/R line-chart); 'Ver' (vertical pattern for eacht freq), 'Hor' (horizontal pattern) or 'Full' and specify the start- en stop-frequencies. Then click <Generate>.

B.t.w, did you read the _GettingStarted.txt file ?

Concerning the 144 mhz / helix problem, for now I am not able to reproduce it overhere. I would very much like to know about this, could you give me some more details ?

Arie.

1039. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 08:46:04 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138610764.365669.30200@o13g2000cwo.googlegroups.com>
Source record: 64850

Yes, it does support Nec4, but as you already mentioned, you need a
license to use it.

Arie.

1040. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 10:16:21 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11trprodls7d5b3@corp.supernews.com>
Source record: 64851
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

CLFE wrote:
> . . .
> I know of a guy who had an HF radio fry when the voltage to it exceeded 16
> VDC - not once, but twice - doing some major damage (a few parts and lots of
> dollars). He didn't know what caused it the first time to protect it before
> the second. He thought it was just a fluke (the first time). The point is,
> anything beyond the rated 13.8 was running a risk - even if accidental. And
> as argued in previous posts, the whine coming straight from the mother of
> it - has to be a bear.

It might well have been the load dump phenomenon Dave described. The cause of load dump is that at any given time, the alternator contains quite a bit of energy. If a good part of the load is abruptly removed from the alternator, the energy is "dumped" into whatever is left connected to it. The result can be several tens of volts or more, with the capability of supplying a lot of current. A common cause of load dump is loose battery terminals, and this might be what happened to the fellow with the blown rigs. The safest thing is to connect the rig directly to the battery posts, not the connectors or connecting wires. Long ago I bought and built a Heathkit SSB mobile rig, and I recall drilling holes in the ends of the battery posts and (gently) driving in some special terminals that came with the mobile supply.

I'll join the chorus in recommending against connecting a rig anywhere but at the battery, and add my recommendation that the connection be made directly to the posts. As several others have said, the battery does much more than start the car. Without it you've got a very nasty supply with the potential to do serious damage.

Roy Lewallen, W7EL

1041. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 13:50:42 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <SQoDf.144513$6K2.38502@edtnps90>
Source record: 64852

Thanks for the info Arie.

Frank

"Arie" <4nec2@gmx.net> wrote in message
news:1138610764.365669.30200@o13g2000cwo.googlegroups.com...
> Yes, it does support Nec4, but as you already mentioned, you need a
> license to use it.
>
> Arie.
>

1042. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 13:55:04 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <YUoDf.144514$6K2.16703@edtnps90>
Source record: 64853

"Arie" <4nec2@gmx.net> wrote in message
news:1138610568.326958.241300@f14g2000cwb.googlegroups.com...
> Hello Dan,
>
> to sweep frequencies after having modified or created your model, push
> F7, select 'use freq-loop', select one of the options 'Gain' (only
> Gain, F/B and F/R line-chart); 'Ver' (vertical pattern for eacht freq),
> 'Hor' (horizontal pattern) or 'Full' and specify the start- en stop-
> frequencies. Then click <Generate>.
>
> B.t.w, did you read the _GettingStarted.txt file ?
>
> Concerning the 144 mhz / helix problem, for now I am not able to
> reproduce it overhere. I would very much like to know about this, could
> you give me some more details ?
>
> Arie.

Arie,

Will the NEC code for such a structure help you?

Frank

1043. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 14:35:22 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drl87a$5fo$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64854

As a foreigner, what's all this business about needing a license to
use antenna design software, Could somebody explain? What are the
license resrictions?

Reg, G4FGQ

==========
"Arie" <4nec2@gmx.net> wrote in message
news:1138610764.365669.30200@o13g2000cwo.googlegroups.com...
> Yes, it does support Nec4, but as you already mentioned, you need a
> license to use it.

1044. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 14:52:59 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11ts9usuq7daa1@corp.supernews.com>
Source record: 64855
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

An additional reason to connect to a point with the lowest Thev. equiv. resistance (battery terminals) has to do with turning off inductive loads. A student of mine told me he once measured just over -100 volts on the line to a windshield wiper motor when the motor was turned off at just the right time. (Storage scopes are desirable.) That system was not put into production.

Another story has to do with the turret motor in a tank. When the turret stopped rotating the resultant voltage spike would destroy all of the tank's electronics. (Talk about concentrating one's mind!) The temporary solution - since the problem was discovered late - was to buy huge zener diodes from Delco Radio (as it was then called) and place them across the 28 volt line.

73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11trprodls7d5b3@corp.supernews.com...
> CLFE wrote:
> > . . .
> > I know of a guy who had an HF radio fry when the voltage to it exceeded
16
> > VDC - not once, but twice - doing some major damage (a few parts and
lots of
> > dollars). He didn't know what caused it the first time to protect it
before
> > the second. He thought it was just a fluke (the first time). The point
is,
> > anything beyond the rated 13.8 was running a risk - even if accidental.
And
> > as argued in previous posts, the whine coming straight from the mother
of
> > it - has to be a bear.
>
> It might well have been the load dump phenomenon Dave described. The
> cause of load dump is that at any given time, the alternator contains
> quite a bit of energy. If a good part of the load is abruptly removed
> from the alternator, the energy is "dumped" into whatever is left
> connected to it. The result can be several tens of volts or more, with
> the capability of supplying a lot of current. A common cause of load
> dump is loose battery terminals, and this might be what happened to the

> fellow with the blown rigs. The safest thing is to connect the rig
> directly to the battery posts, not the connectors or connecting wires.
> Long ago I bought and built a Heathkit SSB mobile rig, and I recall
> drilling holes in the ends of the battery posts and (gently) driving in
> some special terminals that came with the mobile supply.
>
> I'll join the chorus in recommending against connecting a rig anywhere
> but at the battery, and add my recommendation that the connection be
> made directly to the posts. As several others have said, the battery
> does much more than start the car. Without it you've got a very nasty
> supply with the potential to do serious damage.
>
> Roy Lewallen, W7EL

1045. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:02:26 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <ejast1156t95uis6p3lie60aghkkrvr9gr@4ax.com>
Source record: 64856

On Mon, 30 Jan 2006 14:35:22 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>As a foreigner, what's all this business about needing a license to
>use antenna design software, Could somebody explain? What are the
>license resrictions?
>----
>Reg, G4FGQ
>

http://www.llnl.gov/IPandC/technology/software/softwaretitles/nec.php

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1046. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:05:38 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <6XpDf.144526$6K2.102986@edtnps90>
Source record: 64857

Reg,

NEC2 is public domain, so there are no restrictions. NEC4 was developed by Gerald Burke at the Lawrence Livermore National Laboratory, and requires an end user license. The cost is $500.00. See http://www.llnl.gov/IPandC/technology/software/softwaretitles/nec.php for info.

Frank

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message news:drl87a$5fo$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com...
> As a foreigner, what's all this business about needing a license to
> use antenna design software, Could somebody explain? What are the
> license resrictions?
> ----
> Reg, G4FGQ
>
> ==
> "Arie" <4nec2@gmx.net> wrote in message
> news:1138610764.365669.30200@o13g2000cwo.googlegroups.com...
>> Yes, it does support Nec4, but as you already mentioned, you need a
>> license to use it.
>
>

1047. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:07:50 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43DE2BC6.9060208@comcast.net>
Source record: 64858

Arie,

The nec listing is below. I am unable to 'edit' the coil, element 2.

In 'edit' mode how are the GH and GM cards edited? (The coil is displayed intermittently.)

Is there something specific about using tags 101 and 102 as opposed to 1 and 2?

Thanks - Dan

```
CM Loaded 2 m monopole
CE
GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
GM 100 0 0 0 0 0 0 4 0
GW 3 15 0.4 0 4 0.4 0 0 0.025
GS 0 0 0.025400
GE 1
GN 1
EX 0 3 15 00 1 0
LD 5 101 1 15 5.8001E7
LD 5 102 1 50 5.8001E7
LD 5 3 1 15 5.8001E7
FR 0 41 0 0 135 2
RP 0 181 1 1000 -90 90 1.00000 1.00000
```

Arie wrote:
> Hello Dan,
>
> to sweep frequencies after having modified or created your model, push
> F7, select 'use freq-loop', select one of the options 'Gain' (only
> Gain, F/B and F/R line-chart); 'Ver' (vertical pattern for eacht freq),
> 'Hor' (horizontal pattern) or 'Full' and specify the start- en stop-
> frequencies. Then click <Generate>.
>
> B.t.w, did you read the _GettingStarted.txt file ?
>
> Concerning the 144 mhz / helix problem, for now I am not able to
> reproduce it overhere. I would very much like to know about this, could
> you give me some more details ?
>
> Arie.
>

1048. nec simulation - what is going on with this antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:13:37 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <S5idnRrTQOK5sEPenZ2dnUVZ_sydnZ2d@comcast.com>
Source record: 64859

All,

Can someone explain what is going on with this antenna? There are two resonant points, one at about 4.5 MHz and one at about 6. The first one has a low impedance and the second one has a high impedance. I actually saw this phenomenon with a physical antenna being measured with an 8405a but had did not recall ever hearing it discussed.

Thanks - Dan

```
CM Length X1 = 3
CM Length X2 = 2
CM Length Y = 2
CM X sections = 2
CM Y sections = 2
CM Rotate X, Y, Z = 0, 0, 0
CM Move X, Y, Z = 0, 0, 0
CE
GW 1 25 0.5 0 15 6.5 0 15 0.025
GW 2 25 -0.5 0 15 -6.5 0 15 0.025
GW 3 5 -0.5 0 15 0.5 0 15 0.025
GE 0
LD 0 2 13 13 1.e-3 3.e-5
LD 0 1 13 13 1.e-3 3.e-5
EX 0 3 3 0 1 0
GN 2 0 0 0 13 5.e-3
FR 0 1 0 0 4 0
EN
```

1049. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:39:33 UTC
From: jpopelish@rica.net
Message-ID: <1138635573.308064.14190@o13g2000cwo.googlegroups.com>
Source record: 64860
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Gary Schafer wrote:
> On Sun, 29 Jan 2006 20:38:44 -0500, John Popelish <jpopelish@rica.net>
> wrote:
(snip)
> >But back to your question, I assumed that you are qualified to measure
> >the wiring resistance between your alternator and battery and also
> >calculate (or read the manual for) the supply current of your radio,
> >and know ohm's law. So you should be able to tell me the difference
> >in the voltage between your alternator and battery. You might also
> >estimate what the ampacity of that branch wire (with fusible link) is,
> >based on the wire gauge of the link. If that current is anything near
> >your radio's draw, you might worry about operating your radio through
> >that link, especially right after starting the engine, when the
> >battery is recharging through it, also. Replacing that piece of wire
> >is an onerous task in many cars.
>
> I have never seen it recommended to connect a radio to anywhere but at
> the battery terminals. Even if the radio were to be connected to a
> junction box designed for this purpose some distance from the battery
> you never want the alternator to connect to that same junction. Having
> anything connected to the wire carrying alternator current will induce
> noise into that power line due to the resistance of the alternator
> charging wire.
>
> Most wires coming from the alternator to the battery are rather small,
> #10 or #8 wire at best. There is significant voltage drop in that
> wire. The noise from the alternator is not just from the average
> current causing a voltage drop but from the peak current which is much
> higher.

Thank you for discussing principles and effects.

Agreed, that the alternator does not produce pure DC, so the voltage
will not be quite as quiet as it is at the other end of the several
feet of wire that connects to the battery positive. (But to paraphrase
Ceeil Moore's question to me, earlier) Do you have any idea,
quantitively how much voltage you are talking about? THe ripple
current in the output of the alternator sjhould be a few percent of the
DC, at most, with some high frequency pings caused by rectifier reverse
recovery. Adding a rather small PI filter is very effective at
reducing all this no a much lower value. And the small charging branch
to the battery cuts the other way, also. If you draw significant
current from the battery, the battery's voltage is held lower than the
alternator voltage by the IR drop of that wire. And that drop lowers

the charge state of the battery.

> Every time you turn on the headlights the noise will get worse if the
> radio is connected directly to the alternator because of additional
> voltage drop on that line.
> If there should be a break in the alternator wire to the battery the
> surge from the alternator will most likely damage the radio.

Now, you may just have hit upon the one factor that trumps every other minor effect. Unfortunately, the most common cause of load dump voltage damage to automotive electronics is caused by a loose battery terminal. So, till you solve that problem, you are not gaining much insurance by moving your connections to the battery terminal.

> The alternator regulator most likely would not be able to handle the
> rapidly changing load of an SSB radio smoothly causing additional
> spikes as it tries to regulate.

Is any radio not equiped with input bypass capacitors? I am skeptical. If this were the case, the radio would not tolerate feet of wire in the power circuit. Do you have a schematic of any DC powered radio that does not show some storage at the DC power input?

Again, we are not talking about powering from an alternator with no battery attached (except for a terminal comng off the battery), only moving the power point to the other end of the battery charging branch wire (that 2 or 3 feet of 10 gauge wire you mentioned earlier (with, possibly a fuse link section in it) so that the average current arrives from the alternator, and only a stabilizing effect on the ripple arrives from the battery through that wire.

> Need more reasons? :>)

Who knows? If you got 'em, I am happy to think about 'em.

I want to thank you, again, for taking time to think (in print) about what is going on in this system and what can go wrong. This has been helpful.

1050. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:54:52 UTC
From: richardharrison@webtv.net
Message-ID: <11346-43DE36CC-1070@storefull-3255.bay.webtv.net>
Source record: 64863

Roy Lewallen, W7EL wrote:
"Long ago, I bought and built a Heathkit SSB mobile rig, and I recall drilling holes in the ends of the battery posts and (gently) driving in some special terminals that came with the mobile supply."

A good idea! Corrosion at the posts can allow transients exceeding the battery voltage. Tapping directly into the posts, clamps the voltage to the battery volts despite other faulty connections. When you try to to raise voltage across a low resistance battery, it maintains its terminal voltage very well.

Automobile radios usually connect to a designated place on the fuse block. This works despite transients because the radio`s current drain is small and relatively constant. It doesn`t step up to transmit. The car radio has inside, an air-wound choke in series with its battery supply and this continues to a "spark plate" capacitor of a few picoFarads to ground, inboard of the choke, to filter out r-f interference and to take the edge off power surges.. For longer transients, an electrolytic capacitor shunts the spark plate.

An electrolytic capacitor is the short-term equivalent of a battery. Instantaneously, the volts across a capacitance can`t change. But, capacitors are imperfect. Their leads have inductance, and the capacitor has series resistance.

In the 1950`s, I bought a Blau Punkt radio for my new Karman Ghia Volkswagen. The radio was equipped with a heavyweight iron-cored choke outside the radio in its power lead. Of course the radio was filtered internally with electrolytic capacitors.

The L-C powerlead network was an effective transient suppressor for a radio that was meant to be connected to a fuseblock.

Problem in using the L-C network with a transceiver is the current drawn while transmitting. Resistance of the choke must be very low not to degrade performance.

Best regards, Richard Harrison, KB5WZI

1051. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 15:55:06 UTC
From: jpopelish@rica.net
Message-ID: <1138636506.753752.81780@o13g2000cwo.googlegroups.com>
Source record: 64861
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Dave Platt wrote:
> In article <2l8rt1pobob8lojd1ujsb9md1qndatmq04@4ax.com>,
> Gary Schafer <gaschafer@comcast.net> wrote:
>
> >Every time you turn on the headlights the noise will get worse if the
> >radio is connected directly to the alternator because of additional
> >voltage drop on that line.
> >If there should be a break in the alternator wire to the battery the
> >surge from the alternator will most likely damage the radio.
>
> A more common problem I'd be concerned about would be "load dump",
> which occurs when a high-amperage load on the car's electrical bus
> stops drawing current abruptly - for example, if the headlights are
> switched off while the engine's running. It's common for this to
> result in a large voltage spike out of the alternator, before the
> regulator has time to reduce the alternator output. Spikes of several
> dozen volts are common - my recollection is that auto-electronics
> manufacturers engineer their devices to be able to stand 50 volts at
> their power-supply terminals for a brief moment.

This is an effect that is well worth discussing and understanding,
thoroughly.
The load dump (with battery connected) would be a very slight thing,
if the alternator could react instantaneously to load changes. But
like any feedback control system, it has a maximum frequency that it
can react. The electronic excitation regulator is quite fast at
detecting the slight rise in system voltage following a load reduction
(headlights turned off), but the magnetic field around the rotor takes
more time to decay after the excitation regulator decides to cut its
current. During that time, the alternator ramps its output current
down from what the load curent was before the dump to what it is after
the dump. So there is a few 10s of milliseconds when the battery has
to absorb the extra current. And that pushes the voltage across it up.
The opposite effect occurs (and worse because ocold filaments draw
almost 10 times the normal current) when the headlights are first
turned on. There is also a wiring system inductive effect that adds an
additional but very brief (microseconds) peak to each of those
excursions.

> I would expect that the magnitude of this spike would be significantly
> greater at the alternator terminals, than it is at the battery, due to
> the series resistance and series inductance of the battery-to-
> alternator cable, and the battery's low impedance. It's possible that
> a load (e.g. radio) which could survive a load-dump spike if wired to

> the battery, could be damaged by a higher-amplitude spike from the
> same load-dump event which might occur right at the alternator.
>
> It seems clear that the standard, recommended practice is to wire
> radios to the battery. It also seems that the original poster is not
> satisfied with the justification for this practice (either by
> convention, recommendation of authority, or theoretical arguments
> posed to far), and that he has some arguments from first principles
> which he feels justify a different approach (wiring to the alternator).

I want to understand why the recommended way is best, all things considered. I see some positives and some negatives, and judged, on balance that the "normal" way was not necessarily the best way. But, the load dump factor may outweigh all the others, if it causes damage. I'm not so sure it does, but this diuscussion is helping me weigh it.

> In the end, for the original poster to be satisfied (either that
> standard practice is the best practice, or that his alternate
> suggestion of wiring directly across the alternator is actually
> superior) I suspect that he's going to have to fall back on that old
> mainstay of scientific discovery - he's going to have to experiment.

All the principles involved should include only known science. As long as I don't miss anything, the probvlem should be solvable without reinventing electrical principles by experiment. But a few accurate measurements of the voltage spikes at both the battery terminals and DC bus distribution point are probably not a bad idea, in any particular car.

> He'll have to wire several different radios, of various makes and
> models, up to [1] a double-fused heavy-gauge feed from the battery
> posts, and [2] an equivalent feed brought back to alternator and its
> ground. He can then determine whether his alternate approach actually
> delivers more useful current to the radio, whether the transmitter
> powers are actually higher, whether there is indeed more alternator
> whine or RFI on the transmitted signal or the received audio, and
> whether the radios show any differential in their ability to survive a
> few months of usage and load-dump spikes without losing their Magic
> Blue Smoke.
>
> Actual results (either way) trump speculative arguments.

We totally agree on this. Argue with anyone but reality. ;-)

1052. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 16:03:20 UTC
From: jpopelish@rica.net
Message-ID: <1138637000.703505.117300@o13g2000cwo.googlegroups.com>
Source record: 64862
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Roy Lewallen wrote:
> CLFE wrote:
> > . . .
> > I know of a guy who had an HF radio fry when the voltage to it exceeded 16
> > VDC - not once, but twice - doing some major damage (a few parts and lots of
> > dollars). He didn't know what caused it the first time to protect it before
> > the second. He thought it was just a fluke (the first time). The point is,
> > anything beyond the rated 13.8 was running a risk - even if accidental. And
> > as argued in previous posts, the whine coming straight from the mother of
> > it - has to be a bear.
>
> It might well have been the load dump phenomenon Dave described. The
> cause of load dump is that at any given time, the alternator contains
> quite a bit of energy. If a good part of the load is abruptly removed
> from the alternator, the energy is "dumped" into whatever is left
> connected to it. The result can be several tens of volts or more, with
> the capability of supplying a lot of current. A common cause of load
> dump is loose battery terminals, and this might be what happened to the
> fellow with the blown rigs. The safest thing is to connect the rig
> directly to the battery posts, not the connectors or connecting wires.
> Long ago I bought and built a Heathkit SSB mobile rig, and I recall
> drilling holes in the ends of the battery posts and (gently) driving in
> some special terminals that came with the mobile supply.
>
> I'll join the chorus in recommending against connecting a rig anywhere
> but at the battery, and add my recommendation that the connection be
> made directly to the posts. As several others have said, the battery
> does much more than start the car. Without it you've got a very nasty
> supply with the potential to do serious damage.

Thank you for supplying an important missing piece of this puzzle.
I would add that if your battery starts to get a little flakey and the
voltage is sagging pretty low during starting, you can have a large
increase in the load dump voltage at the battery, even if you have made
the seperate connections you describe, just because of the increase in
the battery impedance.

One of the most common electrical system problem in cars is loose
battery terminals, and I'll bet not one person in a hundred, that
installs separate leads to the battery, terminates them as you
describe. So when I hear stories of a load dump causing damage, I
always wonder about how clean and tight those terminals were.

1053. Re: nec simulation - what is going on with this antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 16:20:01 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <R0rDf.144564$6K2.142405@edtnps90>
Source record: 64864

Dan, your LD commands are incomplete. You have specified a series RLC in the middle of each of the end tags. You show an R of 0.001 ohms, and an L of 30uH. There is no corresponding series C. What you have is an end inductivly loaded dipole., with floating end segments. This probably accounts for your anti-resonance at about 6 MHz.

Your GE 0 card is ok -- indicating no ground plane -- but you have retained a Sommerfeld/Norton ground description in the GN card. Not that it makes any difference to the final result.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:S5idnRrTQOK5sEPenZ2dnUVZ_sydnZ2d@comcast.com...
> All,
>
> Can someone explain what is going on with this antenna? There are two
> resonant points, one at about 4.5 MHz and one at about 6. The first one
> has a low impedance and the second one has a high impedance. I actually
> saw this phenomenon with a physical antenna being measured with an 8405a
> but had did not recall ever hearing it discussed.
>
> Thanks - Dan
>
> CM Length X1 = 3
> CM Length X2 = 2
> CM Length Y = 2
> CM X sections = 2
> CM Y sections = 2
> CM Rotate X, Y, Z = 0, 0, 0
> CM Move X, Y, Z = 0, 0, 0
> CE
> GW 1 25 0.5 0 15 6.5 0 15
> 0.025
> GW 2 25 -0.5 0 15 -6.5 0 15
> 0.025
> GW 3 5 -0.5 0 15 0.5 0 15
> 0.025
> GE 0
> LD 0 2 13 13 1.e-3 3.e-5
> LD 0 1 13 13 1.e-3 3.e-5
> EX 0 3 3 0 1 0
> GN 2 0 0 0 13 5.e-3
> FR 0 1 0 0 4 0
> EN

1054. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 16:21:32 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <g2rDf.20155$Yu.4513@newssvr27.news.prodigy.net>
Source record: 64865
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:
> Unfortunately, the most common cause of load dump
> voltage damage to automotive electronics is caused by a loose battery
> terminal. So, till you solve that problem, you are not gaining much
> insurance by moving your connections to the battery terminal.

I replaced my original equipment GMC pickup battery with
a Sears Die-Hard with four ternmials. Two of the terminals
are the standard GMC terminals on the side and two of the
terminals are old-style posts on top. I tie my transceiver
to the two posts on top.
--
73, Cecil http://www.qsl.net/w5dxp

1055. Re: Help with J antenna design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 17:50:41 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <drljlh$qa4$1@engnntp2.cig.mot.com>
Source record: 64866

Nope. As I said in my post "...(though this section does not have to
be vertical, it's just convenient in many cases).
"

73, Steve, K9DCI
"Ron McConnell" <rcmcc@earthlink.net> wrote in message
news:q5bdt1d243tmafn222s4dpk4r3805lrqku@4ax.com...
>
> ...
>
> By the way, the matching section for the proposed vertical antenna
> doesn't have to vertical, does it? Can't it be run horizontally
> and the overall height reduced from about 50 ft to about 33 ft?
> As mentioned a L network with an inductor and capacitor would also
> work instead.
>
> Cheers, 73,
>
> Ron McC.
> w2iol@arrl.net
>
> Ronald C. McConnell, PhD
>

1056. Re: help editing 4nec2 model ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 18:42:47 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <H6tDf.166808$km.28160@edtnps89>
Source record: 64867

Dan, when using the GM card it reassigns the tag numbers, by adding the number in the first field to those cards it moves. This is to avoid confusion. The LD cards, or any other cards, if applicable, should then use the reasigned tag numbers.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43DE2BC6.9060208@comcast.net...
> Arie,
>
> The nec listing is below. I am unable to 'edit' the coil, element 2.
>
> In 'edit' mode how are the GH and GM cards edited? (The coil is displayed
> intermittently.)
>
> Is there something specific about using tags 101 and 102 as opposed to 1
> and 2?
>
> Thanks - Dan
>
> CM Loaded 2 m monopole
> CE
> GW 1 15 0.4 0 5.6 0.4 0 1.6 0.025
> GH 2 50 .32 1.6 .4 .4 .4 .4 0.025
> GM 100 0 0 0 0 0 0 4 0
> GW 3 15 0.4 0 4 0.4 0 0 0.025
> GS 0 0 0.025400
> GE 1
> GN 1
> EX 0 3 15 00 1 0
> LD 5 101 1 15 5.8001E7
> LD 5 102 1 50 5.8001E7
> LD 5 3 1 15 5.8001E7
> FR 0 41 0 0 135 2
> RP 0 181 1 1000 -90 90 1.00000 1.00000
>
>
>
> Arie wrote:
>> Hello Dan,
>>
>> to sweep frequencies after having modified or created your model, push
>> F7, select 'use freq-loop', select one of the options 'Gain' (only
>> Gain, F/B and F/R line-chart); 'Ver' (vertical pattern for eacht freq),

>> 'Hor' (horizontal pattern) or 'Full' and specify the start- en stop-
>> frequencies. Then click <Generate>.
>>
>> B.t.w, did you read the _GettingStarted.txt file ?
>>
>> Concerning the 144 mhz / helix problem, for now I am not able to
>> reproduce it overhere. I would very much like to know about this, could
>> you give me some more details ?
>>
>> Arie.
>>

1057. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 18:56:05 UTC
From: dplatt@radagast.org
Message-ID: <11tsoa5bps11h62@corp.supernews.com>
Source record: 64868
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

In article <11trprodls7d5b3@corp.supernews.com>,
Roy Lewallen <w7el@eznec.com> wrote:

> A common cause of load
>dump is loose battery terminals, and this might be what happened to the
>fellow with the blown rigs. The safest thing is to connect the rig
>directly to the battery posts, not the connectors or connecting wires.
>Long ago I bought and built a Heathkit SSB mobile rig, and I recall
>drilling holes in the ends of the battery posts and (gently) driving in
>some special terminals that came with the mobile supply.

Neat idea!

I've noticed that some of the Optima batteries (e.g. the blue-top
dual-application type) come with two sets of battery posts - standard
car-type posts, and smaller (threaded - SAE?) studs. Might be a good
idea to connect radios to the threaded studs, using heavy-duty ring
terminals on the ends of the wires.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1058. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 19:01:12 UTC
From: jpopelish@rica.net
Message-ID: <1138647672.578460.259550@g44g2000cwa.googlegroups.com>
Source record: 64869
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:

> I replaced my original equipment GMC pickup battery with
> a Sears Die-Hard with four ternmials. Two of the terminals
> are the standard GMC terminals on the side and two of the
> terminals are old-style posts on top. I tie my transceiver
> to the two posts on top.

Now, There's a tip worth passing along.

1059. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 19:03:18 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <7iost15an0kvcc4sgfl4tr5j7vk7klc5j0@4ax.com>
Source record: 64870
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

On 30 Jan 2006 07:39:33 -0800, jpopelish@rica.net wrote:

>
>Gary Schafer wrote:
>> On Sun, 29 Jan 2006 20:38:44 -0500, John Popelish <jpopelish@rica.net>
>> wrote:
>
>> The alternator regulator most likely would not be able to handle the
>> rapidly changing load of an SSB radio smoothly causing additional
>> spikes as it tries to regulate.
>
>Is any radio not equiped with input bypass capacitors? I am skeptical.
> If this were the case, the radio would not tolerate feet of wire in
>the power circuit. Do you have a schematic of any DC powered radio
>that does not show some storage at the DC power input?

Most radios do not have much for DC line filtering in them. Maybe a
500 to 1000 mfd cap if that. With a current draw of around 20 amps for
the typical transmitter 1000 mfd is not much capacitance at 12 volts.

As to the "load dump" problem, when the radio draw swings from around
1 amp to 20 amps at an audio rate I have to believe that the
alternator regulator would have a hard time keeping up and not
allowing overshoot or holes in the supply current.

Alternator filters can help filter out alternator noise but some times
they fail to do so even when the radio is fed directly from the
battery.

73
Gary K4FMX

1060. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 21:21:07 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11tt0q73gk50627@corp.supernews.com>
Source record: 64871
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

I have one ancient but probably still valid reference to alternator load dump. It indicates that it can be simulated by connecting a 6000 uF capacitor charged to 120 volts to the system. The result is a 120 volt spike with a decay time of several tens of ms. (The reference doesn't show the load current or impedance, but presumably this is with a typical automotive load and wiring system.) It also shows how a so-called "'A' line filter" -- an L network of 200 - 400 uH and 1000 uF reduces the peak voltage to a mere 40 volts but with a stretched decay time. The conclusion is that robust automotive electronic devices should be able to withstand this. I got this from an app note for a National audio amplifier IC which was designed to be used in automotive applications and so can withstand momentary 40 volt spikes.

Roy Lewallen, W7EL

1061. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 21:24:42 UTC
From: jpopelish@rica.net
Message-ID: <1138656282.777637.162910@g44g2000cwa.googlegroups.com>
Source record: 64872
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Gary Schafer wrote:
> On 30 Jan 2006 07:39:33 -0800, jpopelish@rica.net wrote:
> Most radios do not have much for DC line filtering in them. Maybe a
> 500 to 1000 mfd cap if that. With a current draw of around 20 amps for
> the typical transmitter 1000 mfd is not much capacitance at 12 volts.
>
> As to the "load dump" problem, when the radio draw swings from around
> 1 amp to 20 amps at an audio rate I have to believe that the
> alternator regulator would have a hard time keeping up and not
> allowing overshoot or holes in the supply current.
(snip)

If I had a radio that had a 20 ampere power swing through the supply leads at audio frequencys, I would consider it a poor choice to run those power leads more than a few inches without adding some serious storage at the radio end of the wires, just to reduce the IR (reduce peak amps to something closer to average) and inductive drop of the power wires. The same applies to an audio amplifier of similar current draw. It is very common for large audio amplifiers to have serious capacitance at their end of the power wires. This also reduces the peak voltage during a load dump.

1062. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 22:47:53 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <drm52p$7g3$1@engnntp2.cig.mot.com>
Source record: 64874

If you haven't cut it yet, don't.

Is it insulated wire or bare? If it is bare it is not important. Just get the spool right up there at the end of the "antenna" part of the wire.

I'd just hook it up and try it. If it is insulated wire the supposed loading coil on the end may very well be irrelevant. It won't be radiating and, being at the end, it isn't loading anything significant.

I use my 40M invert Vee on 6M and work several states.

Steve, K9DCI

"an_old_friend" <konstans@hotmail.com> wrote in message news:1138175739.071083.52270@g49g2000cwa.googlegroups.com...
>
> Litzendraht wrote:
> > old friend,
> > As I understand your post, you have lost the use of your 6 meter beam
> > and you would like to try a random wire antenna. And as I understand
> > you say that you have a tuner which is capable of working with a random
> > wire.
> >
> > I would say go ahead and try it. But you can't leave the extra length
> > of wire still wound on the spool. You'll have to make the sacrifice and
> > go ahead and clip off a 50 ft. length or so.
> >
> > Random wire antennas are not very common on 6 meters, but there's no
> > reason it can't work.
> >
> > I'm not sure what that inducer is that you intend to leave on one end.
>
> the indcutor I was reffering wawould have been the spool of wire a or
> or quater miles of wound wire surely would have a respectable
> inductance
>
> I would have rathe rleft it since the anttenna is most becuase I don't
> try climbing over some raly icy surfaces is all
>
> tahnk so advice
> >
> > John
>

1063. Re: Increase range on 433 Mhz transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-30 22:54:36 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <drm5fc$7qr$1@engnntp2.cig.mot.com>
Source record: 64873

Make a "dipole" out of just OVER 1/2 wave of wire. Then form the center
into a single turn loop and couple it to (bring it near) the loop in the
unit.

Steve, K9DCI

"Carsten Hjorth" <carstenfjernhjorth@yahoo.dk> wrote in message
news:43d949a4$0$12401$ba624c82@nntp02.dk.telia.net...
> Hello!
>
> I just bought this: http://www.rustindustries.co.uk/remote.htm
> The range is only 10-15 meters in free air, only 5-7 meters indoor.
> Is it possible to connect a whip type antenna?
> I have calculated a length ca 17 cm.
> But i cannot see where to connect the antenna.
> The transmitter has a loop style antenna, powered by one transistor and a
> oscillator of some sort, i have drawn a schematic:
> http://media.openbloc.com/1tpwr
> I have tried to connect the antenna to the collector, but that gave me no
> output at all.
>
> Regards
>
> Carsten Hjorth
>
>

1064. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 04:43:07 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <xn0ehuvrr3cir4000@cnews.newsguy.com>
Source record: 64875
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

jpopelish@rica.net wrote:

> One of the most common electrical system problem in cars is loose
> battery terminals
~~~~~~

Years ago I had a car where the battery terminals came loose every
couple of weeks, despite tightening the clamps to a fare-thee-well. I
couldn't figure out why until a very car-smart friend pointed out the
clamp that held the battery was loose. Normal road vibration caused the
battery to wiggle around just enough to loosen the clamps.

A word to the wise.

73, Bill W6WRT
~~~~~~

1065. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 05:49:14 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <INGdnbNqI_nbZEPenZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 64676
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Bill Turner wrote:

> Years ago I had a car where the battery terminals came loose every
> couple of weeks, despite tightening the clamps to a fare-thee-well. I
> couldn't figure out why until a very car-smart friend pointed out the
> clamp that held the battery was loose. Normal road vibration caused the
> battery to wiggle around just enough to loosen the clamps.
>
> A word to the wise.

Here's another.

I once had a battery with a very slight leak around one of the posts,
and the terminal kept corroding and making poor contact. I took the
terminals lose, cleaned everything with baking soda, rinsed and dried
all the parts then sanded the posts and inside of the clamps to get a
fresh lead surface.

Here is the tip. I coated both surfaces with a film of heavy silicon
grease (Dow 111, or similar) and re clamped the terminals, squeezing
out the excess grease as the clamps tightened. Even though the
outside of the terminals still got visibly corroded the connection
remained perfect till the battery failed a couple years later. I have
pretreated every battery, when new, ever since, and have never had a
connection problem. The grease completely seals out moisture, acid
and oxygen, but is about as easy as air for the lead surfaces to break
through to make perfect contact.

I see that some headlight bulbs now come pre-glopped with a dollop of
such grease to protect the wiring terminals from moisture.

1066. Re: question on random wire anttenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 06:18:12 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1138688292.894019.107080@f14g2000cwb.googlegroups.com>
Source record: 64677

Steve,

The reason I mentioned clipping a piece of wire off the reel is
that" old friend" mentioned in his initial post a half mile spool of
wire. And he was not specific as to wire size.

I was thinking maybe a wooden reel of # 12 or 14.

And yes, if it's small gauge wire on a little spool at the end, it
would act as a bit of end loading, which would have little effect.

But, ya gotta admit, old friend was not very descriptive.

John

1067. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 06:36:28 UTC
From: Doug Gavilanes <gavilan1@earthlink.net>
Message-ID: <MzDDf.3757$5E3.32@newsread1.news.pas.earthlink.net>
Source record: 64678
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

John Popelish wrote:
> Bill Turner wrote:
>
>> Years ago I had a car where the battery terminals came loose every
>> couple of weeks, despite tightening the clamps to a fare-thee-well. I
>> couldn't figure out why until a very car-smart friend pointed out the
>> clamp that held the battery was loose. Normal road vibration caused the
>> battery to wiggle around just enough to loosen the clamps.
>>
>> A word to the wise.
>
>
> Here's another.
>
> I once had a battery with a very slight leak around one of the posts,
> and the terminal kept corroding and making poor contact. I took the
> terminals lose, cleaned everything with baking soda, rinsed and dried
> all the parts then sanded the posts and inside of the clamps to get a
> fresh lead surface.
>
> Here is the tip. I coated both surfaces with a film of heavy silicon
> grease (Dow 111, or similar) and re clamped the terminals, squeezing out
> the excess grease as the clamps tightened. Even though the outside of
> the terminals still got visibly corroded the connection remained perfect
> till the battery failed a couple years later. I have pretreated every
> battery, when new, ever since, and have never had a connection problem.
> The grease completely seals out moisture, acid and oxygen, but is about
> as easy as air for the lead surfaces to break through to make perfect
> contact.
>
> I see that some headlight bulbs now come pre-glopped with a dollop of
> such grease to protect the wiring terminals from moisture.

WD-40 also works quite well, as it penetrates and lubricates, and there is less mess. I run dual Optima yellow tops in my Wrangler, and a heavy duty conventional (normal maintenance) battery in my XYL's Grand Cherokee and in my Cherokee, and WD-40 has kept corrosion off of the terminal for years now. Works much better than the soaked red and black corrosion inhibiting felt rings. Just a thought...

Keep the bolts tight. Don't forget to run a heavy enough gauge fused wire pair to the rig to make up for voltage drop over your run length (lest you end up with a 30A load dropping the voltage to 10 or 11V and diminished RF output). Your rig was designed to operate as rated at

13.8VDC. With the engine off, you might get 12VDC. With too light a gauge of wire in a long run, you'll see your display dim or go out as the voltage to the rig drops below the minimum required voltage at the radio when keyed.

73,

Doug, N6XQY
Garden Grove, CA.

1068. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 07:39:38 UTC
From: nm5k@wt.net
Message-ID: <1138693178.863640.283070@g14g2000cwa.googlegroups.com>
Source record: 64679

>Nuff said. I'll keep that in mind next time you
>say a vertical is 24 dB better than a dipole. :-) ....

Well, of course, I've never said any such thing.
But...It is often a large noticable difference.

Mike sed...
>My guess is that it depends on where
>the signals originated from

Thats exactly it. In general, the farther away, the
better the vertical vs the low dipole.
If you don't work long haul dx, the vertical user
may never see much advantage. At night on 40m,
if the distance is less than 1000 miles, often the
dipole and vertical would be about the same.
In my case, I had to get over a 1000 miles to see
much vertical advantage. At 1500 miles, it's fairly
obvious. "appx 2 S units worth". In the long hauls
to VK, JA, etc, often 3-4 S units worth. That will
be a larger increase than your 2 s units noise increase.
Modeling won't tell the whole story in a case like
this. Just ask W8JI about his 300+ feet dipoles
on 160m. In theory , they were supposed to beat his
vertical towers. But , they usually don't on long
paths where the angle is very low.
I once yakked with this guy in Tokyo for a while.
On the dipole at 1kw, I'd be S 8-9... On the
GP with 1 kw, I'd be a solid 20 over 9. And it's
reciprical as far as xmit/rcve. So I'd always be
listening on the vertical if I wanted to see the same
increase on my end.
The only exception would be if I had something
better like a beverage, etc, but that applies more
to 80 and 160, than 40.
Thats the real point of my comments,
not which is better. To me, installing a good vertical
for dx, and then listening on a low dipole to same is
kinda silly being the benefits are reciprical.
Also...Building a good vertical, but not using it for
long hauls is kinda silly too... :/ It's the wrong tool for
working 500-800 miles away. If it's never better than the
dipole in that case, don't fret too much, as it's perfectly
normal.
MK

1069. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 10:50:00 UTC
From: nitespark <nitespark@cox.net>
Message-ID: <BhHDf.31523$bF.20497@dukeread07>
Source record: 64680
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

John Popelish wrote:
> Bill Turner wrote:
>
>> Years ago I had a car where the battery terminals came loose every
>> couple of weeks, despite tightening the clamps to a fare-thee-well. I
>> couldn't figure out why until a very car-smart friend pointed out the
>> clamp that held the battery was loose. Normal road vibration caused the
>> battery to wiggle around just enough to loosen the clamps.
>>
>> A word to the wise.
>
>
> Here's another.
>
> I once had a battery with a very slight leak around one of the posts,
> and the terminal kept corroding and making poor contact. I took the
> terminals lose, cleaned everything with baking soda, rinsed and dried
> all the parts then sanded the posts and inside of the clamps to get a
> fresh lead surface.
>
> Here is the tip. I coated both surfaces with a film of heavy silicon
> grease (Dow 111, or similar) and re clamped the terminals, squeezing out
> the excess grease as the clamps tightened. Even though the outside of
> the terminals still got visibly corroded the connection remained perfect
> till the battery failed a couple years later. I have pretreated every
> battery, when new, ever since, and have never had a connection problem.
> The grease completely seals out moisture, acid and oxygen, but is about
> as easy as air for the lead surfaces to break through to make perfect
> contact.
>
> I see that some headlight bulbs now come pre-glopped with a dollop of
> such grease to protect the wiring terminals from moisture.

When I get a battery terminal with the corrosion and oxidation on it, I
sometimes pour a small quantity of Coca Cola on it. Cleans them right
off. I will then put a small amount of conductive grease on it.

Andy
WD4KDN

--
I have never met a liberal street cop.

1070. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 12:30:06 UTC
From: N7ZZT - Eric Oyen <n7zzt@127.0.0.1>
Message-ID: <rLIDf.6220$2o5.2329@dukeread11>
Source record: 64681
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

nitespark wrote:

>> I see that some headlight bulbs now come pre-glopped with a dollop of
>> such grease to protect the wiring terminals from moisture.
>
> When I get a battery terminal with the corrosion and oxidation on it, I
> sometimes pour a small quantity of Coca Cola on it. Cleans them right
> off. I will then put a small amount of conductive grease on it.
>
> Andy
> WD4KDN
got any info on where one can acquire this conductive grease?

--
DE N7ZZT
Eric Oyen
Phoenix, Arizona
e-mail: n7zzt(at)hotmail(dot)com
the difference between intelligence and stupidity is that intelligence
has its limits.

1071. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 13:40:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <DNJDf.20363$Yu.13353@newssvr27.news.prodigy.net>
Source record: 64682

nm5k@wt.net wrote:
>>Nuff said. I'll keep that in mind next time you
>>say a vertical is 24 dB better than a dipole. :-) ...
>
> Well, of course, I've never said any such thing. ...

Please note the smiley face.

> In the long hauls to VK, JA, etc, often 3-4 S units worth.

Well, of course, you just said it again. :-) The standardized
S-unit is 6 dB. Therefore, "4 S units" over a dipole is 24 dBd
gain for your omnidirectional vertical monopole. (That's ~17 dB
more gain than a three element Yagi has over a dipole.)
--
73, Cecil http://www.qsl.net/w5dxp

1072. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 13:42:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YOJDf.20364$Yu.18589@newssvr27.news.prodigy.net>
Source record: 64683
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

nitespark wrote:
> When I get a battery terminal with the corrosion and oxidation on it, I
> sometimes pour a small quantity of Coca Cola on it. Cleans them right
> off.

Imagine what it does to your estomache.
--
73, Cecil http://www.qsl.net/w5dxp

1073. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 15:07:55 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43df6fb6@fidonet.org>
Source record: 64684

"Doug Gavilanes" bravely wrote to "All" (31 Jan 06 06:36:28)
--- on the heady topic of "Re: Mobile installation question"

DG> From: Doug Gavilanes <gavilan1@earthlink.net>
DG> Xref: core-easynews rec.radio.amateur.antenna:223329
DG> rec.radio.amateur.equipment:165192 rec.radio.amateur.misc:247161

DG> Keep the bolts tight.

Hand tight, not arm tight. If the bolt is tightened too hard it may
cause the terminal to separate internally and ruin the battery.
This is especially critical of terminals that connect at the front.
The traditional post type terminals are better in this respect.

A*s*i*m*o*v

1074. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 16:52:23 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <84ydnT49U9RYCELeRVn-jg@comcast.com>
Source record: 64685

Cecil Moore wrote:

SNIPPED
>
> Well, of course, you just said it again. :-) The standardized
> S-unit is 6 dB. Therefore, "4 S units" over a dipole is 24 dBd
> gain for your omnidirectional vertical monopole. (That's ~17 dB
> more gain than a three element Yagi has over a dipole.)

Cecil ... you are out of context [again].

The earlier post referred to long haul DX on the lower bands where a three element Yagi at optimum height is not easily within the realm of possibility for us mere mortals. [Let's see, 1/2 wavelength high on 80 meters is 135 feet, boom length for a three element Yagi at 80 meters will approach 100 feet, You will need a football field of free space and quite a few bucks, and the approval of several engineering firms, the approval of you town building inspector, and the wrath of your neighbors to compete with a simple vertical over a decent ground.] C'mon Cecil!! Cecil ... apples and oranges ... do not enhance your reputation.

Many of us use verticals on 160, 80 and 40 meters simply because they blow the pants off of horizontals on those frequencis for long haul DX.

1075. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 16:53:18 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <84ydnTk9U9RmCELeRVn-jg@comcast.com>
Source record: 64686
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:

> nitespark wrote:
>
>> When I get a battery terminal with the corrosion and oxidation on it,
>> I sometimes pour a small quantity of Coca Cola on it. Cleans them
>> right off.
>
>
> Imagine what it does to your estomache.

estomache? Is that the hair under my nose??

1076. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 17:12:07 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <-amdnSdiKKvMBELenZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 64687

N7ZZT - Eric Oyen wrote:

> got any info on where one can acquire this conductive grease?

The grease isn't conductive. But the normal contact pressure squeezes
it out of the way, and the metal parts touch, normally. It just
surrounds the contact points with an oxygen and moisture barrier.

Any translucent (not filled with Teflon or mineral particles) silicone
grease will work. I have some GE dielectric silicone grease and
several silicone vacuum and O-ring greases I have used, successfully.

I bought my last couple batches from eBay. E.G.

http://cgi.ebay.com/Silicone-Grease-Chemplex-620-High-Temp-Lube_W0QQitemZ7586125013QQcategoryZ4666QQssPageNameZWDVWQQrdZ1QQcmdZViewItem
http://cgi.ebay.com/100-G-TUBE-SILICONE-GREASE_W0QQitemZ7586247113QQcategoryZ42899QQssPageNameZWDVWQQrdZ1QQcmdZViewItem
http://cgi.ebay.com/Silicone-Grease-50g-Tube-Diving-Lubricant-Contact_W0QQitemZ7215984830QQcategoryZ19303QQssPageNameZWDVWQQrdZ1QQcmdZViewItem
http://cgi.ebay.com/5-Gram-Dielectric-Silicone-Grease-Packets-Lot-of-50_W0QQitemZ7584853892QQcategoryZ4660QQssPageNameZWDVWQQrdZ1QQcmdZViewItem

1077. FA: AEA ET-1 Econo-Tuner

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 17:44:53 UTC
From: Walter Kurtz <pbrstreetgang@wowway.com>
Message-ID: <SqOdnanqFJGOP0LeRVn-qA@wideopenwest.com>
Source record: 64688
Cross-posted to: alt.radio.amateur,rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.swap

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=5860921624&rd=1&sspagename=STRK%3AMESE%3AIT&rd=1

1078. Re: AEA ET-1 Econo-Tuner

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 17:56:29 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <cb535$43dfa4e6$97d56b99$8224@ALLTEL.NET>
Source record: 64689
Cross-posted to: alt.radio.amateur,rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.swap

Minor scratches? I guess major are only those made by an axe...

"Walter Kurtz" <pbrstreetgang@wowway.com> wrote in message
news:SqOdnanqFJGOP0LeRVn-qA@wideopenwest.com...
>
http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=5860921624&rd=1&sspagename=STRK%3AMESE%
3AIT&rd=1
>
>
>

1079. Re: HF-Ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 20:16:09 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <drogid$5nn$1@news.netins.net>
Source record: 64690

I have 26 runs of 60' insulated (#14 THHN), radials on the surface, pinned down with lawn staples beneath an 80m inverted L. The measured efficiency of this particular arrangement is showing approximately 83%. How much more or less efficient bare wire might be (and no one I trust has ever maintained that there is any advantage whatsoever to bare copper vs. insulated radials on or in the shallow ground), is a question I have not had any interest in looking at.

I'm not about to rip them all out and put down bare copper to see if the efficiency changes, and can think of no other way to answer the question. Of course the absolute value of efficiency is a function not only of the number of radials, but the quality of the earth they are laying on, so YMMV.

...hasan, N0AN
"Owen Duffy" <owen@no.where> wrote in message
news:0an0t15bj93jvgh510cfcbe1ikadplvk8p@4ax.com...
> On Thu, 19 Jan 2006 21:22:25 -0600, "David G. Nagel" <nagel@core.com>
> wrote:
>
>
>>Owen;
>>
>>Given the expertise that Bill has accumulated over the years and the
>>good advise he has given to anyone who asks I think that your attitude
>>needs modification. When you were in school did you challenge your
>>teachers this way? I think not. If you diagreed you kept it to your self
>>or checked it out on your own.
>
> Dave,
>
> I don't agree, I have never had a teacher worth his salt who responded
> to polite questions as Bill did.
>
> No, I don't believe something just because I read it on the 'net, I
> would like to know why.
>
>>For what it's worth everything that I have read tends towards placing
>>the radials on the open ground, usually staked down so as to prevent
>>tripping or getting caught in a lawn mower.
>
> Yes, I see lots of web articles describing that in ham stations, but
> it is not the only approach that I see documented and talked about.
>
> In my limited experience, I have not seen commercial HF installations
> with radial / ground wires laid above ground in preference to being

> buried. The only cases I can recall were because of rock.
>
> Whilst there are articles around about the performance of shallow
> buried radials, I have not seen any that deal quantitatively with
> radials laid on the ground, or pinned to the ground as you describe,
> and the effects of those different installations on antenna
> efficiency. That is what I was asking about.
>
> Equally, there a plenty of articles where the author insists that
> radials cannot work near the ground and they need to be some distance
> above, some stating a quarter wave above.
>
> They can't all have "better" efficiency, the only way to know is to
> seek reasons why a configuration is better.
>
> Bill proposed a "better" configuration and declined to explain why /
> how it is better.
>
> Owen
> --

1080. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 20:29:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11tvi4r1eit8d67@corp.supernews.com>
Source record: 64691

John Popelish wrote:
> . . .
> Any translucent (not filled with Teflon or mineral particles) silicone
> grease will work. I have some GE dielectric silicone grease and several
> silicone vacuum and O-ring greases I have used, successfully.
>
> I bought my last couple batches from eBay. E.G.

You can also find silicone grease at stores that sell plumbing supplies. I've gotten it at Home Depot. It's probably a good deal more expensive than eBay, but a little goes a long way.

Roy Lewallen, W7EL

1081. Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 20:53:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <droip1$o4l$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64692

There is much discussion about the relative merits of the simple vertical versus horizontal dipole antennas.

Their radiation patterns are well known. They are very broad in both the vertical and horizontal planes. Both have have a null.

We need consider only the broadside, maximum, radiation from a dipole.

Most of the arguments can be settled by considering the elevation angle of the path taken by the radio wave between the transmitting and receiving stations. Followed by a little elementary geometry or trigonometry. For present purposes a flat Earth can be assumed.

At an elevation angle of around 45 degrees the strength of radiation received from vertical and horizontal antennas are about equal. (This has nothing to do with Eznec take-off angles.)

The heights of the Ionospheric reflecting layers are -

E-layer = 70 miles, daylight only.
F1-layer = 140 miles, occasionally, in daylight only.
F2-layer = 190 miles, night-time.
F2-layer = 250 miles, in daylight.

From flat-Earth geometry, at an elevation angle of 45 degrees, the distance between transmitting and receiving stations is twice the height of the reflecting layer. Therefore, at this distance the received signal strength can be expected to be about the same from both types of antenna.

As the elevation angle decreases, the distance increases and radiation from the vertical antenna increases. The radiation from the dipole decreases. There is an extra propagation loss due to an increase in radio path length but this equally affects radiation from both antenna types.

As the elevation angle increases towards the vertical, distance decreases, radiation from the dipole increases and radiation from the vertical antenna decreases in strength. The radio path loss decreases but the difference in pattern between the two antenna types is maintained at the receiver.

With a spherical Earth, in daylight, using the F2-layer, at elevation angles around 5 degrees, one-hop distances of 3,500 miles can occur. With two hops, at angles of around 12 degrees, distances of 5,000 miles can occur.

For each additional hop there is loss in the layer and loss in the reflection in the ground. Some parts of the radio path may be in daylight and others in darkness. More than one layer may be involved. Muli-path distortion occurs. Peculiar things happen and much depends on frequency.

The low-angle performance of a half-wave dipole, even when radiating broadside towards the receiver, is very poor in comparison with a simple vertical.

On the other hand, a simple vertical does reasonably well when working just across county because of the short propagation path, almost straight up and down again, or even via the groundwave for very short distances.

Reg, G4FGQ.

1082. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 21:21:22 UTC
From: nitespark <nitespark@cox.net>
Message-ID: <vxQDf.32450$bF.26781@dukeread07>
Source record: 64693

N7ZZT - Eric Oyen wrote:
> nitespark wrote:
>
>
>>>I see that some headlight bulbs now come pre-glopped with a dollop of
>>>such grease to protect the wiring terminals from moisture.
>>
>>When I get a battery terminal with the corrosion and oxidation on it, I
>>sometimes pour a small quantity of Coca Cola on it. Cleans them right
>>off. I will then put a small amount of conductive grease on it.
>>
>>Andy
>>WD4KDN
>
> got any info on where one can acquire this conductive grease?
>

The stuff I got was at a hamfest (I know that doesn't do you much good),
but its called "Fargolene". I think it can be had at commercial
electrical supply houses and is used when splicing electrical lines.

Andy
WD4KDN

1083. Re: Mobile installation question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 21:22:02 UTC
From: nitespark <nitespark@cox.net>
Message-ID: <6yQDf.32458$bF.5419@dukeread07>
Source record: 64694
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.misc

Cecil Moore wrote:

> nitespark wrote:
>
>> When I get a battery terminal with the corrosion and oxidation on it,
>> I sometimes pour a small quantity of Coca Cola on it. Cleans them
>> right off.
>
>
> Imagine what it does to your estomache.

I am hoping I don't have battery oxidation in my stomach.

1084. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 21:58:35 UTC
From: richardharrison@webtv.net
Message-ID: <12147-43DFDD8B-1506@storefull-3251.bay.webtv.net>
Source record: 64695

Whoever authored "AM Loop Antennas" attached to Chuck Olson`s posting wrote:
"A spiral loop is least sensitive to signals received in its plane."

Nonsense. Spiral, edgewound, or whatever, any loop antenna which is small in terms of wavelength is sensitive to signals within its plane, and insensitive to signals broadside to its plane.

My authority is Kraus` 1950 edition of "Antennas", page 160, Fig. 6-6.

The plane wave arriving broadside to the small loop tends to generate currents in the same direction in all sides of the loop. The sides of a turn in the loop are connected in series. So, the currents in opposite sides of the loop tend to add to zero when the wave sweeps the loop from broadside.Time of arrival and phase are the same on both sides of the loop from broadside.

Best regards, Richard Harrison, KB5WZI

1085. Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 22:14:38 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <drongf$d6v$1@news.netins.net>
Source record: 64696

Necessity being the mother of invention, bit me. Last weekend was CQWW CW on 160m. I stumbled on it and had no 160m antenna. I have a terrific performer for 80m, an inverted L with 33, 60' radials stapled on the ground. I also have a Carolina Windom 80 at 42' fed with perhaps 100' of RG8x.

Since it was a cw contest, I figured, brute force stuff with my tuner. Very interesting results.

I tried the 80m inverted L, feeding just the center conductor, and also tying the shield and center conductor together ...both cases feeding it as an end fed wire. I got no band noise and very poor signals, but what the heck, I worked 10 or 15 stations who were running S7 or better in spite of things. I could tell I wasn't being heard very well. (I was also running about 500w output).

Then I tried the same trick with the CW-80. I fed the center conductor only...band noise jumped up to S-3, signals were amazingly loud, and I started working everyone I could hear...first call. It didn't matter how weak they were, I got answered immediately. I worked 44 states, France, and two stations in Bermuda. My question: What is this antenna configuration and why is it working so well, especially relatively low angle stuff like France and Bermuda, West Coast, etc. I don't get it? (Feeding both shield and center tied together, or feeding it "normally" did not work as well as just feeding the center conductor)

This is an OCF Dipole, 85' on one side and 51' on the other. I have no idea which side of the dipole was fed by the center conductor of the coax. My coax runs underground (5' below the ground for 55' to the tower base), and then up parallel to the tower (5 feet from the tower) for the 40' or so the CW-80 is in the air). This really shouldn't work very well, yet it does. VSWR bandwidth seems consistent with a somewhat efficient antenna (about 40 Khz before having to re-tune the tuner.

I'm at a loss to explain why it would seem to work so well as a DX antenna for 160m. Pleased, but surprised. Any theories?

Am I somehow shunt/gamma feeding my tower?

I also had no tuner arcing, no rf in the shack, no RFI in the hi-fi, ...zippo...all the RF appears to go where I would like it to, but I have NO idea why. I prefer to understand things and not just rejoice in my dumb luck. Ideas?

...hasan, N0AN

1086. Re: Vertical ant gain vs No radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-01-31 22:37:24 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <droor5$f8h$1@news.netins.net>
Source record: 64697

If you have decent soil, 32 radials of the length you specified, will be quite adequate and adding the number indicated by your friend is just a waste of effort and money. Here's a relatively simple (if not completely foolproof) way to tell if you have enough radials:

If you know the theoretical radiation resistance of your vertical over a perfect ground: measure your current input impedance (at the antenna feedpoint) with your current number of radials.

You can find the theoretical radiation resistance of your antenna by looking up short monopoles in the ARRL Antenna handbook...Let's say on 40m, your HF6 is 28 ohms (it's shorter than a full 1/4 wave, so it will be somewhat lower than the 37 ohms of a perfect quarter wave vertical) The shorter the radiator, the lower the radiations resistance and you can read it directly from a graph in the book noted above (or in Devoldre's Low Band DX'ing...can't recall which) (or you can get it from using one of Reg Edwards programs). Anywho, let's say it's 37 ohms.

Now you measure the input Z of your configuration. Let's say it measures 39 ohms. Your efficiency is 28/39 or 72%. If it were to measure 35 ohms, your efficiency would be 80%. You can convert this all to dB loss and you will be able to see if your current 32 radials are enough to make you happy. I found 26 radials that were 60' long were enough to give me better than 80% efficiency (actually that number started to happen between 12 and 16 radials, but my soil conditions are very good).

This way, you take most of the theory and speculation out of things. Use an MFJ-269 or some-such and you can do all the measurements yourself. I'm betting you will find your efficiency better than 70%...also keep in mind you have some additional losses from your vertical being a multi-bander, so the efficiency I'm referring to is based on a single band vertical with no additional loading/trapping/stubbing losses.

In short:

1. Find out what the Radiation Resistance of your shortened antenna should be.
2. Measure the input Z at the antenna of your actual antenna/radial field is.

Divide 1 by 2, convert to percent....a "rule of thumb" measure of efficiency of your system has been obtained.

If you radial field were perfectly lossless, 1 would equal 2. Every ohm above the theoretical radiation resistance of your antenna that you measure is "loss" .

Have fun.

...hasan, N0AN
"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:y1SBf.755914$xm3.21213@attbi_s21...
> My antenna is a Butternut HF6V vertical. This antenna is ground mounted
> and has 32 radials, which have been laid on top of the grass. The average
> length of the radials is about 30 feet. I operate primarily on 40 meters,
> and I seem to receive good signal reports.
>
> Today, I ran into another operator on 40 meters, who told me that I would
> get a large signal improvement if I increased the number of radials from
> the current 32 to 100 or 120. In fact he said he had seen information on
> the SteppIR website (http://www.steppir.com/) that supported his
> assertion. Remembering how hard I had worked to install my existing 32
> radials, I responded that the effect of quadrupling my radial count would
> probably give only a small increase in gain of less than one dB. Indeed
> Cebik's website (http://www.cebik.com/gp/gr.html) seems to support this
> view with a graphic titled "Radial Length vs. Number of Radials". If I am
> interpreting this graphic correctly, the gain increase from 32 radials to
> 128 radials is about 0.5 dB.
>
> Any comments would be gratefully received.
>
> John, N9JG
>

1087. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 02:17:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11u06h4ohdvkqef@corp.supernews.com>
Source record: 64698

This rather oversimplified analysis overlooks an important factor. The field radiated upward from an antenna seen at long distances (that is, the sky wave as contrasted to the short-range surface wave) consists of a vector sum of two components: one radiated directly, and one which is inintially radiated downward then reflected from the ground. The ground reflection alters both the magnitude and phase of the reflected component depending on ground characteristics and the polarization of the wave. At low angles, horizontally polarized waves are reflected very well even when the ground is quite poor; vertically polarized waves react differently. The resulting fields can fairly easily be calculated manually if desired using simple geometry, equations for reflection coefficient which can be found in Kraus and other references, and vector addition. One thing you'll quickly discover is that the field from a vertical does NOT monotonically increase as the elevation angle decreases, but decreases below a moderate angle determined by the ground characteristics. EZNEC (including the free demo) and other modeling programs clearly show this important effect.

Roy Lewallen, W7EL

Reg Edwards wrote:
> There is much discussion about the relative merits of the simple
> vertical versus horizontal dipole antennas.
>
> Their radiation patterns are well known. They are very broad in both
> the vertical and horizontal planes. Both have have a null.
>
> We need consider only the broadside, maximum, radiation from a dipole.
>
> Most of the arguments can be settled by considering the elevation
> angle of the path taken by the radio wave between the transmitting and
> receiving stations. Followed by a little elementary geometry or
> trigonometry. For present purposes a flat Earth can be assumed.
>
> At an elevation angle of around 45 degrees the strength of radiation
> received from vertical and horizontal antennas are about equal. (This
> has nothing to do with Eznec take-off angles.)
>
> The heights of the Ionospheric reflecting layers are -
>
> E-layer = 70 miles, daylight only.
> F1-layer = 140 miles, occasionally, in daylight only.
> F2-layer = 190 miles, night-time.
> F2-layer = 250 miles, in daylight.
>

> From flat-Earth geometry, at an elevation angle of 45 degrees, the
> distance between transmitting and receiving stations is twice the
> height of the reflecting layer. Therefore, at this distance the
> received signal strength can be expected to be about the same from
> both types of antenna.
>
> As the elevation angle decreases, the distance increases and radiation
> from the vertical antenna increases. The radiation from the dipole
> decreases. There is an extra propagation loss due to an increase in
> radio path length but this equally affects radiation from both antenna
> types.
>
> As the elevation angle increases towards the vertical, distance
> decreases, radiation from the dipole increases and radiation from the
> vertical antenna decreases in strength. The radio path loss decreases
> but the difference in pattern between the two antenna types is
> maintained at the receiver.
>
> With a spherical Earth, in daylight, using the F2-layer, at elevation
> angles around 5 degrees, one-hop distances of 3,500 miles can occur.
> With two hops, at angles of around 12 degrees, distances of 5,000
> miles can occur.
>
> For each additional hop there is loss in the layer and loss in the
> reflection in the ground. Some parts of the radio path may be in
> daylight and others in darkness. More than one layer may be involved.
> Muli-path distortion occurs. Peculiar things happen and much depends
> on frequency.
>
> The low-angle performance of a half-wave dipole, even when radiating
> broadside towards the receiver, is very poor in comparison with a
> simple vertical.
>
> On the other hand, a simple vertical does reasonably well when working
> just across county because of the short propagation path, almost
> straight up and down again, or even via the groundwave for very short
> distances.
> ----
> Reg, G4FGQ.
>
>

1088. editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 03:22:04 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <Q7-dnVeWirXDtH3eRVn-pQ@comcast.com>
Source record: 64699

All,

Has anyone figured out how to edit a 'helix' object in 4nec2? Creating a helix works, however it creates a line entry per segment. Is there a way to create a helix with the graphical editor that has multiple segments per card entry?

Thanks - Dan

1089. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 03:35:23 UTC
From: Crazy George <gfm99@attglobal.net>
Message-ID: <43e02cbd@kcnews01>
Source record: 64700

Reg:

Your simplistic analysis disagrees with my 50 years of operating local contacts on 75 meters here in the southern US. Practical verticals are universally 10 or more dB poorer than dipoles for local contacts, no matter what the other variables. The very best quarter wave 66 foot vertical with 365 radials is about equivalent to a dipole lying on the ground for 0 to 250 mile contacts on 75. Forty meters performs a little closer to your argument, but not much. Among long time local ragchewers, verticals are considered to radiate equally poorly in all directions.

The NVIS nonsense also enters here. I have thrown back at the "proponents" of NVIS that elevation angles of 45 degrees or less hardly qualify as NVIS (properly NHIS, maybe?) but they continue to misuse common English to further their specious arguments.

By the way, how much of the UK is within 500 miles of your QTH? I have to exceed 500 miles just to get out of the state of Texas.

--
Crazy George
W5VPQ
My real address is my ham call <at>ARRL.NET The ATTGlobal is a SPAM trap.
"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:droip1$o4l$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com...
> There is much discussion about the relative merits of the simple
> vertical versus horizontal dipole antennas.
>
> Their radiation patterns are well known. They are very broad in both
> the vertical and horizontal planes. Both have have a null.
>
> We need consider only the broadside, maximum, radiation from a dipole.
>
> Most of the arguments can be settled by considering the elevation
> angle of the path taken by the radio wave between the transmitting and
> receiving stations. Followed by a little elementary geometry or
> trigonometry. For present purposes a flat Earth can be assumed.
>
> At an elevation angle of around 45 degrees the strength of radiation
> received from vertical and horizontal antennas are about equal. (This
> has nothing to do with Eznec take-off angles.)
>
> The heights of the Ionospheric reflecting layers are -
>
> E-layer = 70 miles, daylight only.

> F1-layer = 140 miles, occasionally, in daylight only.
> F2-layer = 190 miles, night-time.
> F2-layer = 250 miles, in daylight.
>
> From flat-Earth geometry, at an elevation angle of 45 degrees, the
> distance between transmitting and receiving stations is twice the
> height of the reflecting layer. Therefore, at this distance the
> received signal strength can be expected to be about the same from
> both types of antenna.
>
> As the elevation angle decreases, the distance increases and radiation
> from the vertical antenna increases. The radiation from the dipole
> decreases. There is an extra propagation loss due to an increase in
> radio path length but this equally affects radiation from both antenna
> types.
>
> As the elevation angle increases towards the vertical, distance
> decreases, radiation from the dipole increases and radiation from the
> vertical antenna decreases in strength. The radio path loss decreases
> but the difference in pattern between the two antenna types is
> maintained at the receiver.
>
> With a spherical Earth, in daylight, using the F2-layer, at elevation
> angles around 5 degrees, one-hop distances of 3,500 miles can occur.
> With two hops, at angles of around 12 degrees, distances of 5,000
> miles can occur.
>
> For each additional hop there is loss in the layer and loss in the
> reflection in the ground. Some parts of the radio path may be in
> daylight and others in darkness. More than one layer may be involved.
> Muli-path distortion occurs. Peculiar things happen and much depends
> on frequency.
>
> The low-angle performance of a half-wave dipole, even when radiating
> broadside towards the receiver, is very poor in comparison with a
> simple vertical.
>
> On the other hand, a simple vertical does reasonably well when working
> just across county because of the short propagation path, almost
> straight up and down again, or even via the groundwave for very short
> distances.
> ----
> Reg, G4FGQ.
>
>

1090. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 04:27:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <7NWDf.20524$Yu.10710@newssvr27.news.prodigy.net>
Source record: 64701

Crazy George wrote:
> By the way, how much of the UK is within 500 miles of your QTH? I have to
> exceed 500 miles just to get out of the state of Texas.

Now George, I'll bet it's only a measley 420 miles. :-)
--
73, Cecil http://www.qsl.net/w5dxp

1091. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 04:42:44 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <8%WDf.155945$AP5.150464@edtnps84>
Source record: 64702

Looks to me like there is a bug in the geometry editor "Create Helix"
command, as I have also noticed the same problem. I sure makes for some
really messy looking code. The helix also appears with the axis normal to
the edit page. Have not figured out how to rotate it yet. Whoever wrote
this interface program did a great job, but seems a heck of a lot easier
just to work at the card level.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:Q7-dnVeWirXDtH3eRVn-pQ@comcast.com...
> All,
>
> Has anyone figured out how to edit a 'helix' object in 4nec2? Creating a
> helix works, however it creates a line entry per segment. Is there a way
> to create a helix with the graphical editor that has multiple segments per
> card entry?
>
> Thanks - Dan

1092. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 05:31:53 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <S_OdndykfexR2n3eRVn-oA@comcast.com>
Source record: 64703

Thanks. That was wondering if that was the case. Every once in a while the editor converts all my segments into wires. All of a sudden the card file will jump from a few cards with segments to dozens of cards with one segment. This is what the helix command does. It could be the same root cause??

Generally the editor is really easy to use for wires. Have you used the select group and Control M features yet? They make changing a group of wires straight forward.

I wonder about the accuracy of the power calculations. They seem too high.

I am experimenting with modeling loaded dipoles versus folded dipoles, extended W's or M's.

Thanks - Dan

Frank wrote:
> Looks to me like there is a bug in the geometry editor "Create Helix"
> command, as I have also noticed the same problem. I sure makes for some
> really messy looking code. The helix also appears with the axis normal to
> the edit page. Have not figured out how to rotate it yet. Whoever wrote
> this interface program did a great job, but seems a heck of a lot easier
> just to work at the card level.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:Q7-dnVeWirXDtH3eRVn-pQ@comcast.com...
>
>>All,
>>
>>Has anyone figured out how to edit a 'helix' object in 4nec2? Creating a
>>helix works, however it creates a line entry per segment. Is there a way
>>to create a helix with the graphical editor that has multiple segments per
>>card entry?
>>
>>Thanks - Dan
>
>
>

1093. More info on old Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 06:31:24 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <jBYDf.9$8D6.1@dukeread11>
Source record: 64704

I have acquired an old tower. I was told the brand is Wilson but I
can't seem to find any information on it. I have photos and I 3D model
I drew here....
http://cdw.homelinux.com:8087/stuff/Tower/

If some one could tell me where I can find specs on it and what kind of
wind load it can handle, I would be grateful.

Note you have to down load this free program to view the 3D model

http://www.alibre.com/products/addons/modelpress.asp

--
Chris W
KE5GIX

Gift Giving Made Easy
Get the gifts you want &
give the gifts they want
One stop wish list for any gift,
from anywhere, for any occasion!
http://thewishzone.com

1094. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 07:29:54 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <e8m0u19mqvv6t382pd6ikg41ot9n0762dh@4ax.com>
Source record: 64705

On Tue, 31 Jan 2006 16:14:38 -0600, "hasan schiers"
<schiers@netins.net> wrote:

>Necessity being the mother of invention, bit me. Last weekend was CQWW CW on
>160m. I stumbled on it and had no 160m antenna. I have a terrific performer
>for 80m, an inverted L with 33, 60' radials stapled on the ground. I also
>have a Carolina Windom 80 at 42' fed with perhaps 100' of RG8x.
>
>Since it was a cw contest, I figured, brute force stuff with my tuner. Very
>interesting results.
>
>I tried the 80m inverted L, feeding just the center conductor, and also
>tying the shield and center conductor together ...both cases feeding it as
>an end fed wire.

Hi Hasan,

You tied the shield and center conductor together - isn't that a short
circuit for the inverted L?

> I got no band noise and very poor signals, but what the

Sounds like a short.

>heck, I worked 10 or 15 stations who were running S7 or better in spite of
>things.

Could they have been much better?

> I could tell I wasn't being heard very well. (I was also running
>about 500w output).

Still sounds like a short.

>Then I tried the same trick with the CW-80. I fed the center conductor
>only...band noise jumped up to S-3, signals were amazingly loud, and I
>started working everyone I could hear...first call.

Sounds like a cleared short.

>I'm at a loss to explain why it would seem to work so well as a DX antenna
>for 160m. Pleased, but surprised. Any theories?

One theory is you could have done a whole lot better - but that is
pure speculation. Another theory is you could have done a whole lot
worse - that doesn't need to be proven because we can all achieve
that.

>Am I somehow shunt/gamma feeding my tower?

Could be. Could be so lossy as to defy SWR too.

>I also had no tuner arcing, no rf in the shack, no RFI in the hi-fi,
>....zippo...all the RF appears to go where I would like it to, but I have NO
>idea why. I prefer to understand things and not just rejoice in my dumb
>luck. Ideas?

For one, I've seen a number of posts recently proclaim the
accomplishments of DX, Low Angle antennas. The two are not
necessarily tied at the hip. It is all predicated on the bank shot
against the ionosphere, and a low angle could as easily end up in the
drink as it could in Lower Slobovia. And Versa Vice, a high angle
(call it 30 degrees) could as easily hit Ulan Bator as it could drill
into Pike's Peak.

True, a high angle is more susceptible to multi-hop losses, unless it
is bouncing over the Pacific on the first two caroms. Without a valid
propagation model tied to the radiation distribution characteristics,
calling an antenna a low Angle, DX performer is a mighty flight of the
imagination.

Short answer: a propagation modeler tracking real time results will
answer more questions than attaching claims to simple monopoles or
dipoles.

I've used WinCAP with a highly distorted antenna response curves to
probe launch angles. WinCAP comes with sample antennas, like the
common quarter wave vertical. I've edited that file such that output
at all elevation angles, except one, are severely reduced. Basically
a one degree height elevation lobe set at one particular angle (for
the sake of argument, a 5 degree launch angle, ï¿½ï¿½ degree). When it
reaches Europe, the footprint floods France.

Now, we know that such an antenna is nigh on impossible to build for
HF, and the common vertical is going to launch very useful power over
a far greater span of angles. The upshot of this is that instead of
that ï¿½ï¿½ degree, we take the typical ï¿½15 degrees around a typical
launch angle of 20 degrees, and you cover a lot of ground at the other
end * IFF * the Ionosphere will support them. And just as much power
will probably hit France even though we've quadrupled that "low"
launch angle FROM 5 degree launch angle, ï¿½ï¿½ degree TO 20 degree launch
angle ï¿½15 degrees.

73's
Richard Clark, KB7QHC

1095. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 13:00:50 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <drqbe2$7rl$1@news.netins.net>
Source record: 64706

Hi Richard,

Of course, when the inverted L was fed with both shield and center conductor shorted, that is a short. But I also tried feeding just its center conductor..and it was poor, as it should have been. I'm not saying that the CW-80 center conductor only, brute force tuned was a great antenna, just way better than I had any right to expect. It's not like 160 is like 10m, where, when the band is up, nearly anything works. 160 is notorious for exposing poor antennas.

In any case, without a legitimate reference antenna, I am limited to "how well do I get answered and at what distance" analysis and that's what I tried to provide.

A test I would like to do sometime is to get a KW-80 trap, put it on the end of the 80m L and extend the wire out for 160m resonance. Then I would have a 2 band inverted L and that would be a reasonable reference antenna. What has kept me from this is I had a hard time finding the KW-80 traps...they were out of stock. My other concern is since the 80m inverted L works so well, I don't want to do anything to ruin its performance. (It's also hard to get motivated to go out and do the raising and lowering and tuning in the middle of winter, yet if I don't do that, there won't be much I can do to evaluate the trap's effect on either band.

I was trying to get "something" for nothing with the CW-80 trick, and succeeded beyond my wildest expectations. Nothing about my situtation could allow anyone to duplicate what is happening here. Too many variables. I just got dumb lucky, and THEN I get curious. I still think this arrangement should not work very well, and that just isn't the case. The goal was to get on the contest and make contacts as if I had a "good" antenna. Anyone who does contesting knows what a "good" antenna feels like as you call stations and listen to those being called. It is so easy in a very few minutes in a busy contest to accurately conclude: this antenna is crap. I couldn't do that and was mystified as to why not.

Either this antenna was working as some sort of kludgey inverted L or somehow the tower was getting excited, or both. Whatever set of fortunate circumstances obtain, if I were to have put up a "proper" antenna for 160 and gotten the results I did (and if those results were/are repeatable), I would have said, "This thing works pretty well." I then became very curious, and that is all. As you noted, without a reference antenna, a real assessment is impossible. However, how the antenna performed on the air in a situation that is well understood (contest environment) made for some raised eyebrows on my part. Rarely does "loading up what is laying around" work. In this case it did. Antennas and propagaton obey the laws of physics. I'm just wondering which ones apply and in what manner for this particular

"arrangement".

I'm left with the question, just "what kind of an antenna" is this, or does it "resemble", that would perform as well as it did.

Radio signals and how they propagate still resemble "magic" at times, yet no one in their right mind would build the mess I was brute forcing my RF into, nor would I recommend it. At the same time, if one just "has" to get on the air in a hurry, my experience might prove useful. If there is one thing I learned from this it is don't dismiss something out of hand without trying it (if there is an urgent need). You may get surprised. Then if it works well, try to explain it later (if you are curious...and I am.)

Thanks for your comments.

73,

...hasan, N0AN
"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:e8m0u19mqvv6t382pd6ikg41ot9n0762dh@4ax.com...
> On Tue, 31 Jan 2006 16:14:38 -0600, "hasan schiers"
> <schiers@netins.net> wrote:
>
>>Necessity being the mother of invention, bit me. Last weekend was CQWW CW
>>on
>>160m. I stumbled on it and had no 160m antenna. I have a terrific
>>performer
>>for 80m, an inverted L with 33, 60' radials stapled on the ground. I also
>>have a Carolina Windom 80 at 42' fed with perhaps 100' of RG8x.
>>
>>Since it was a cw contest, I figured, brute force stuff with my tuner.
>>Very
>>interesting results.
>>
>>I tried the 80m inverted L, feeding just the center conductor, and also
>>tying the shield and center conductor together ...both cases feeding it as
>>an end fed wire.
>
> Hi Hasan,
>
> You tied the shield and center conductor together - isn't that a short
> circuit for the inverted L?
>
>> I got no band noise and very poor signals, but what the
>
> Sounds like a short.
>
>>heck, I worked 10 or 15 stations who were running S7 or better in spite of
>>things.
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> Could they have been much better?

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>>about 500w output).
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> One theory is you could have done a whole lot better - but that is
> pure speculation. Another theory is you could have done a whole lot
> worse - that doesn't need to be proven because we can all achieve
> that.
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>
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>>....zippo...all the RF appears to go where I would like it to, but I have
>>NO
>>idea why. I prefer to understand things and not just rejoice in my dumb
>>luck. Ideas?
>
> For one, I've seen a number of posts recently proclaim the
> accomplishments of DX, Low Angle antennas. The two are not
> necessarily tied at the hip. It is all predicated on the bank shot
> against the ionosphere, and a low angle could as easily end up in the
> drink as it could in Lower Slobovia. And Versa Vice, a high angle
> (call it 30 degrees) could as easily hit Ulan Bator as it could drill
> into Pike's Peak.
>
> True, a high angle is more susceptible to multi-hop losses, unless it
> is bouncing over the Pacific on the first two caroms. Without a valid
> propagation model tied to the radiation distribution characteristics,
> calling an antenna a low Angle, DX performer is a mighty flight of the
> imagination.
>
> Short answer: a propagation modeler tracking real time results will
> answer more questions than attaching claims to simple monopoles or
> dipoles.
>
> I've used WinCAP with a highly distorted antenna response curves to

> probe launch angles. WinCAP comes with sample antennas, like the
> common quarter wave vertical. I've edited that file such that output
> at all elevation angles, except one, are severely reduced. Basically
> a one degree height elevation lobe set at one particular angle (for
> the sake of argument, a 5 degree launch angle, ⁂ degree). When it
> reaches Europe, the footprint floods France.
>
> Now, we know that such an antenna is nigh on impossible to build for
> HF, and the common vertical is going to launch very useful power over
> a far greater span of angles. The upshot of this is that instead of
> that ⁂ degree, we take the typical ⁂15 degrees around a typical
> launch angle of 20 degrees, and you cover a lot of ground at the other
> end * IFF * the Ionosphere will support them. And just as much power
> will probably hit France even though we've quadrupled that "low"
> launch angle FROM 5 degree launch angle, ⁂ degree TO 20 degree launch
> angle ⁂15 degrees.
>
> 73's
> Richard Clark, KB7QHC

1096. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 14:32:12 UTC
From: Crazy George <gfm99@attglobal.net>
Message-ID: <43e0c6e1@kcnews01>
Source record: 64707

Not counting Mexico.

--
Crazy George
W5VPQ
My real address is my ham call <at>ARRL.NET The ATTGlobal is a SPAM trap.
"Cecil Moore" <mycall@arrl.net> wrote in message
news:7NWDf.20524$Yu.10710@newssvr27.news.prodigy.net...
> Crazy George wrote:
>> By the way, how much of the UK is within 500 miles of your QTH? I have
>> to exceed 500 miles just to get out of the state of Texas.
>
> Now George, I'll bet it's only a measley 420 miles. :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

1097. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 15:03:10 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drqijerqq1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64708

Opinions of the many individuals depend on geographic lattitude, World population densities, what bands happen to be favourites, G5RV's and how much money there is in the bank. Let's try to remove these distracting factors.

I'll put it in somewhat different "simplistic" terms.

Everything else being equal, the deciding factors are geometry and trigonometry. The performance of a dipole is better at elevation angles greater than about 45 degrees and the performance of a vertical is better at lower angles. That's because the vertical and horizontal antenna types are oriented at 90 degrees to each other. At elevation angles around 45 degrees performance is about the same for both types.

The ground path distance corresponding to 45 degrees depends on height of the ionospheric reflecting layers. Layer height depends on which layer, mainly E or F2, day or night, summer or winter, and the solar sunspot cycle.

(None of these important factors are taken into account by antenna modelling programs. Propagation prediction programs DO take them into account but, with them, geometry is also an essential factor.)

The range of distances at which vertical and horizontal antennas have similar performances in daylight is from 140 miles (E-layer) to 500 miles (F2-layer), which falls to 370 miles at night.

But what decides whether a transmiiting antenna will be used or not is NOT the distance to the receiver - it is the MUF (maximum usable frequency)

The MUF is geometrically-derived which increases with distance and with a decreasing elevation angle. It also changes with geographical lattitude and sun angle. With the F2-layer the MUF can increase by 3 times the vertical critical frequency Fcrit. Thus, by using a vertical low-angle antenna there are more bands and potentially more listeners available.

Fcrit is the highest frequency which is reflected from a layer at vertical incidence. At higher frequencies the wave passes straight through. The MUF for high radiation angles and short distances is therefore low. It does not increase very fast as the radiation angle falls. It varies with night and day and the solar 11-year cycle. For the E-layer in summer daylight Fcrit is about 3.5 MHz. For the F2-layer in summer daylight it is about 6.5 MHz and about 5.5 MHz at night. On winter nights Fcrit for the F2-layer is about 3.5 MHz.

Fcrit and high angle MUF's are subject to variation due to solar activity. But in general only the 80m and 160m bands, and sometimes 40m, are open for short distance rag-chews. This restricts the advantages of high-angle horizontal dipoles.

Finally, a horizontal dipole radiates best when broadside on. Unless it is rotateable it has weaknesses in its service area.

If I had to choose, I'd always choose a half-wave 80m vertical in preference to a half-wave dipole.

Reg.

1098. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 16:17:44 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138810664.488532.250570@z14g2000cwz.googlegroups.com>
Source record: 64709

Hello Frank and Dan,

red your discussions with interest. Some few answers:

> The helix also appears with the axis normal to the edit page

Yes, you are correct. To get another orientation select XZ, YZ or XY
plane,
before creating the helix.

> Have not figured out how to rotate it yet

Select all segments using Ctrl+A or select the required segments by
drawing
a rectangle around them and select 'Edit->Rotate/Move wires' on the
menu-bar.

> Every once in a while the editor converts all my segments into wires. All of a
> sudden the card file will jump from a few cards with segments to dozens of
> cards with one segment

Hmmm, do not have an explanation for this yet. Did you change the
segmentation-
density between subsequent edit sessions ?

> I wonder about the accuracy of the power calculations. They seem too high.

Please, let me know if you think you found an error. I would very much
like to
hear this,

Thanks for 'testing' and remarks,

Arie.

1099. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 16:25:29 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <Zh5Ef.173119$km.119241@edtnps89>
Source record: 64710

Hi Dan, hopefully Arie is following this thread, and he may have the contacts to resolve these questions. I have not done anything with the editor concerning wires. Your comments make me think I should take a look at it.

What do you mean by power calculations? The only power info I am aware of is the total radiated power. This power is a little misleading in that it does not consider ground absorbtion, and is only valid above a perfectly conducting ground. The e-field Vs angle info is accurate for all conditions. The true radiated power can be obtained by summing these data over a hemispherical region.

Hope you get some correlation on the loaded dipoles when compared with the 8405 measurements.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:S_OdndykfexR2n3eRVn-oA@comcast.com...
> Thanks. That was wondering if that was the case. Every once in a while the
> editor converts all my segments into wires. All of a sudden the card file
> will jump from a few cards with segments to dozens of cards with one
> segment. This is what the helix command does. It could be the same root
> cause??
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> select group and Control M features yet? They make changing a group of
> wires straight forward.
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> I wonder about the accuracy of the power calculations. They seem too high.
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> I am experimenting with modeling loaded dipoles versus folded dipoles,
> extended W's or M's.
>
> Thanks - Dan
>
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>> Looks to me like there is a bug in the geometry editor "Create Helix"
>> command, as I have also noticed the same problem. I sure makes for some
>> really messy looking code. The helix also appears with the axis normal
>> to the edit page. Have not figured out how to rotate it yet. Whoever
>> wrote this interface program did a great job, but seems a heck of a lot
>> easier just to work at the card level.
>>
>> Frank

>>
>>
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:Q7-dnVeWirXDtH3eRVn-pQ@comcast.com...
>>
>>>All,
>>>
>>>Has anyone figured out how to edit a 'helix' object in 4nec2? Creating a
>>>helix works, however it creates a line entry per segment. Is there a way
>>>to create a helix with the graphical editor that has multiple segments
>>>per card entry?
>>>
>>>Thanks - Dan
>>
>>

1100. Re: Vertical on a tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 16:28:19 UTC
From: richardharrison@webtv.net
Message-ID: <4565-43E0E1A3-1060@storefull-3258.bay.webtv.net>
Source record: 64711

Cecil, W5DXP wrote:
"I`m putting a vertical back up for transmitting and will probably receive on my horizontal dipole."

If your grounded tower is near 1/4-wavelength on your favorite band, why not shunt-feed the tower and use it as your radiator?

On the other hand, if you want to support another antenna and eliminate radiation from the supporting tower, outrig a wire from the tower top, hanging parallel to the tower, and connected to the tower top through an L-C network tuned to make current in the outrigged wire equal ond opposite that in the tower. The balanced currents cancel the tower`s radiation. This may be tedious for frequency hopping, but it works.

Best regards, Richard Harrison, KB5WZI

1101. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 16:39:06 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <lqk1u19mhrjnbccstej8h5vmqvut8m7uvq@4ax.com>
Source record: 64712

On Wed, 1 Feb 2006 07:00:50 -0600, "hasan schiers"
<schiers@netins.net> wrote:

>Hi Richard,
>
>Of course, when the inverted L was fed with both shield and center conductor
>shorted, that is a short. But I also tried feeding just its center
>conductor..and it was poor, as it should have been. I'm not saying that the
>CW-80 center conductor only, brute force tuned was a great antenna, just way
>better than I had any right to expect. It's not like 160 is like 10m, where,
>when the band is up, nearly anything works. 160 is notorious for exposing
>poor antennas.

Hi Hasan,

Maybe I just cannot visualize this. The inverted L is fed at the
bottom (at ground level) of a vertical rising wire that at some
distance up meets a horizontally running wire (or the same wire just
takes a horizontal bend out). It is fed with a coax whose shield
connects to a radial field (this is how I am interpreting your
antenna's description that I read, perhaps this is in error).

You also have an OCF Dipole that you have played with, but both
descriptions are woven so tightly together I will try to sort out the
jumble of descriptions.

All former connections remain as they were, but what I read next is
that

1) at the feed point you short the coax center conductor to shield,

OR

2) you short the coax center conductor to shield in the shack.

If (1), then that is simply a dead short which is confirmed by your
report "I got no band noise and very poor signals"

If (2), then you have a lot of RF being pumped directly into the
ground as per your description " My coax runs underground" and you
have left unsaid what you use for ground in the shack.

You also have an OCF Dipole fed with another coax (another
presumption). You feed this:

1) in the conventional way, as a dipole;

2) just with the center conductor (against shack ground?);

3) both the center conductor and shield (against shack ground?).

(1) results in no particular performance to write home about;

(2) or (3) presents far more DX opportunities and clearly more signal
than (1).

>In any case, without a legitimate reference antenna, I am limited to "how
>well do I get answered and at what distance" analysis and that's what I
>tried to provide.

Try using a buddy who monitors you and the DX stations.

>A test I would like to do sometime is to get a KW-80 trap, put it on the end
>of the 80m L and extend the wire out for 160m resonance.

Reasonable plan.

>Then I would have a
>2 band inverted L and that would be a reasonable reference antenna. What has
>kept me from this is I had a hard time finding the KW-80 traps...they were
>out of stock. My other concern is since the 80m inverted L works so well, I
>don't want to do anything to ruin its performance.

By your description, you already have a solution. There is unlikely
to be a better one than:

>I was trying to get "something" for nothing with the CW-80 trick, and
>succeeded beyond my wildest expectations. Nothing about my situtation could
>allow anyone to duplicate what is happening here.

Strictly speaking, yes. However, the general solution you stumbled
across is fairly typical advice here - if we are speaking of the OCF
Dipole being fed with its elements shorted (or otherwise one half of
it as you seem to see it).

The only improvement I would see is to break the OCF Dipole's coax at
ground level and feed THAT shorted together with the coax coming from
the shack (the newly broken end). Attach the short to the center
conductor, and the shield of the coax from the shack going to the
ground field. When you want to use the OCF Dipole in the conventional
way, open the short, remove the ground and connect in the conventional
way. This could be reduced to a couple of switches at ground level.

Otherwise, what I see in the (2) - (3) OCF Dipole feed situation
above, is that you are also feeding a massive, lossy capacitor
(ground) along the way to the OCF Dipole. The (2) - (3) OCF Dipole
feed situation is simply a top loaded vertical which may enjoy some
harmonious relation with the tower in proximity.

Another possibility arises from the tower. If it is guyed, insulate
the guys about 1/3 their length down from the top, but make sure they
are connected at the top (Top Hat). Feed with a gamma match against
your ground field. The gamma wire will probably trace the same path
as your OCF Dipole line (2 to 5 feet out from the tower) and you will

need a few hundred picofarads to tune.

73's
Richard Clark, KB7QHC

1102. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 16:54:00 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <5np1u19h05f25a4g91oa1nuqfltk2q8pf1@4ax.com>
Source record: 64713

On Wed, 1 Feb 2006 15:03:10 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

[bafflegab snipped]

>If I had to choose, I'd always choose a half-wave 80m vertical in
>preference to a half-wave dipole.

Me too, except that even with two acres, I can't meet the zoning
setback requirements for a 135 foot tall tower.

1103. Re: Need AM antenna advice

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 18:41:16 UTC
From: Chuck Olson <chuckolson01@REMOVETHIScomcast.net>
Message-ID: <AKydnVNhg7IlnXzeRVn-oQ@comcast.com>
Source record: 64714

Richard, you are correct - - thanks for spotting that - - the edge-on view of the loop in red should be in line with the "node" direction rather than in line with the "null" direction. I hadn't looked very carefully at the text since I was more interested in the links section at the end, which I felt might be a good resource for Eric.

Chuck W6PKP

"Richard Harrison" <richardharrison@webtv.net> wrote in message news:12147-43DFDD8B-1506@storefull-3251.bay.webtv.net...
> Whoever authored "AM Loop Antennas" attached to Chuck Olson`s posting
> wrote:
> "A spiral loop is least sensitive to signals received in its plane."
>
> Nonsense. Spiral, edgewound, or whatever, any loop antenna which is
> small in terms of wavelength is sensitive to signals within its plane,
> and insensitive to signals broadside to its plane.
>
> My authority is Kraus` 1950 edition of "Antennas", page 160, Fig. 6-6.
>
> The plane wave arriving broadside to the small loop tends to generate
> currents in the same direction in all sides of the loop. The sides of a
> turn in the loop are connected in series. So, the currents in opposite
> sides of the loop tend to add to zero when the wave sweeps the loop from
> broadside.Time of arrival and phase are the same on both sides of the
> loop from broadside.
>
> Best regards, Richard Harrison, KB5WZI
>

1104. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 18:59:11 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <drr1mmmgv1@news.netins.net>
Source record: 64715

Richard, thanks for your patience. I'll try to be more concise, as it is much simpler than the comments we've exchanged so far.

I tried 2 antennas in different configurations:
==========
1. Feeding the center conductor of the Inverted L. Coax runs underground 50' or so, then connects to my radial plate/coax connector. That arrangement stunk. Band noise S-0, strong signals S-7. Worked about 10 or 15 stations.. Lots of calls unanswered. VERY PREDICTABLE, a poor performer to be sure.

2. Feeding the Inverted L conventionally...same result as 1 above. Perfectly predictable.

3. Shorting the Coax at the shack end and feeding as a random wire ....stupid idea...dead short....I didn't even load it, there were no signals to listen to, OF COURSE. (You have to understand, I was in a hurry and not thinking very clearly.)

END OF Inverted L Experiment.
==========
Begin CW-80 Experiment: (OCF Dipole with Line Isolator) up 42'. 85' one side, 51 feet other side.

CW-80: 50' underground coax, then about 45' of vertical coax to the feedpoint of the CW-80 (OCF)

1. I did not feed it conventionally, as I didn't want to chance heating up the "Line Isolator" located 22' below the feedpoint of the OCF. In other words, I didn't just plug the CW-80 coax into the tuner and try to tune it up on 160. I was afraid this might cause the "Line Isolator" to fry (the one located 22' below the feedpoint of the CW-80)....that is how the CW-80 is constructed...it comes with the line isolator, and you attach your coax to the line isolator. Shack > Coax, abt 95' > Line Isolator > 22' Coax > Feedpoint.

50' of the 95' from the shack to the "Line Isolator" is underground in a plastic pipe (along with 3 or 4 other coax cables)

2. Fed the center conductor of the shack end of the coax as a "random wire". I just pushed the center conductor into the coax connector on the back of the antenna tuner and made sure the shell was not connected to the tuner.

The worked rather well, as my description earlier details. I'd call this combo a winner. As I said in my prior post, if I had built an antenna to work on 160 and got the results I am getting with this option, I would have concluded that I had a "good" antenna. (For the real estate in use)

3. Shorted the center conductor to the shield and fed that to my tuner center conductor output as a random wire. (Thus using both the shield and the center conductor in parallel as a "random wire". This configuration did not work any better (and perhaps slightly less band noise) than solution 2 above.)
==========
The full layout of the tower and two wire antennas:

Tower is 48'. At 46' or so, I have a 10' metal horizontal cross boom for pulleys (see below) At 50' I have a 6 element log periodic for 13-30 mhz. at 60' I have a dual band homebrew J-Pole for 2/70cm. So the total vertical height is about 65', with whatever loading the LP has. The LP only has a 14' boom.

So, I have a 48' tower with a 10' cross boom at the top section holding a pulley on each end. One pulley has the CW-80 OCF feedpoint on it with coax hanging down 5' away and parallel to the tower, to ground level where it goes into the pipe, underground for about 50' to the shack.

The other pulley on the other side of the cross boom holds up my 80m inverted L...about 42' vertical and then a sloping wire to complete its proper length for 80m. (about 25' or so). Its feedpoint is about 6" above ground level above a radial plate with 33, 60' radials made of #14 THHN (insulated) wire, stapled to the lawn. The vertical wire is about 5' away and parallel to the tower (on the opposite side of the tower from the CW-80 OCF.

Hopefully, this clears things up.

The only experiment I'm left with is adding a KW-80 80m trap to the 80m inverted L and then adding sufficient wire to get resonance on 160. I take from your prior comments that you don't think this arrangement will work any better than the "dumb luck antenna" I stumbled into. I'm inclined to agree, as the 42' vertical section of the Inverted L isn't all that great for 160...but one never knows.

I just don't want to compromise the current performance of the 80m Inverted L...it is doing a wonderful job on 80m. I worked England on cw and S92RI in Sao Tome & Principe Is.on SSB, first call. (West Africa). Making repeated observations comparing the CW-80 (conventional feed) and the Inverted L has shown the Inverted L receive strength about 2 S-units better on paths beyond 1000 or 1500 miles. On real DX paths, the Inverted L is quite a bit stronger than the CW-80. Of course, the noise level on the Inverted L is higher than on the CW-80...all the time. It is rare that I have to listen on the CW-80 and Transmit on the Inverted L....but it has happened. This inverted L project has been one of my most enjoyable projects in ham radio in years. Measuring the input Z as I went from 0,2,4,8,16,26,33 radials was a rush, as was running 2:1 vswr bandwidth changes with each radial increment increase. The results were downright text book! Falling input Z, decreasing 2:1 vswr bandwidth as radials were added. Nice predicatable slope.

When Reg gave me his rule of thumb equation for radiation resistance of an inverted L, that allowed me to begin calculating efficiency based on

feedpoint Z...further fun. And, to compliment Reg, I found two other sources for the calculation of Rrad of an inverted L and they both agreed with Reg within an ohm (about 25.4 ohms predicted)...although their formula was different. Reg must have some sort of magic reference library, or he has made a bajillion measurements. No matter, his formula worked and was confirmed by two other sources. So far, I've been able to lower my input Z to about 29 ohms, so my efficiency (I know... a crude measurement at best, but better than nothing) is 25.4/29 or 87%. I'll be adding an additional 17 radials when weather and motivation improve, for a total of 50 radials. I'm not expecting any real improvement in performance, but I have the wire, I have the plate, I have the ss hardware, and I have the lawn staples. If I break 90%, I'll be very surprised.

Again, thanks for taking the time to chat about my two projects.

73,

...hasan, N0AN

1105. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 19:53:26 UTC
From: Chuck Olson <chuckolson01@REMOVETHIScomcast.net>
Message-ID: <kIOdnX11aMsVjHzenZ2dnUVZ_sSdnZ2d@comcast.com>
Source record: 64716

Very clear this time - - thanks for your effort to describe it in detail.
I'm curious about the lawn staples - - could you describe them - - material,
length, source, price - - Thanks.
Chuck W6PKP

"hasan schiers" <schiers@netins.net> wrote in message
news:drr1mmmgv1@news.netins.net...
> Richard, thanks for your patience. I'll try to be more concise, as it is
> much simpler than the comments we've exchanged so far.
>
> I tried 2 antennas in different configurations:
> ==
> 1. Feeding the center conductor of the Inverted L. Coax runs underground
50'
> or so, then connects to my radial plate/coax connector. That arrangement
> stunk. Band noise S-0, strong signals S-7. Worked about 10 or 15
stations..
> Lots of calls unanswered. VERY PREDICTABLE, a poor performer to be sure.
>
> 2. Feeding the Inverted L conventionally...same result as 1 above.
Perfectly
> predictable.
>
> 3. Shorting the Coax at the shack end and feeding as a random wire
> ....stupid idea...dead short....I didn't even load it, there were no
signals
> to listen to, OF COURSE. (You have to understand, I was in a hurry and not
> thinking very clearly.)
>
> END OF Inverted L Experiment.
> ==
> Begin CW-80 Experiment: (OCF Dipole with Line Isolator) up 42'. 85' one
> side, 51 feet other side.
>
> CW-80: 50' underground coax, then about 45' of vertical coax to the
> feedpoint of the CW-80 (OCF)
>
> 1. I did not feed it conventionally, as I didn't want to chance heating up
> the "Line Isolator" located 22' below the feedpoint of the OCF. In other
> words, I didn't just plug the CW-80 coax into the tuner and try to tune it
> up on 160. I was afraid this might cause the "Line Isolator" to fry (the
one
> located 22' below the feedpoint of the CW-80)....that is how the CW-80 is
> constructed...it comes with the line isolator, and you attach your coax to

> the line isolator. Shack > Coax, abt 95' > Line Isolator > 22' Coax >
> Feedpoint.
>
> 50' of the 95' from the shack to the "Line Isolator" is underground in a
> plastic pipe (along with 3 or 4 other coax cables)
>
> 2. Fed the center conductor of the shack end of the coax as a "random
wire".
> I just pushed the center conductor into the coax connector on the back of
> the antenna tuner and made sure the shell was not connected to the tuner.
>
> The worked rather well, as my description earlier details. I'd call this
> combo a winner. As I said in my prior post, if I had built an antenna to
> work on 160 and got the results I am getting with this option, I would
have
> concluded that I had a "good" antenna. (For the real estate in use)
>
> 3. Shorted the center conductor to the shield and fed that to my tuner
> center conductor output as a random wire. (Thus using both the shield and
> the center conductor in parallel as a "random wire". This configuration
did
> not work any better (and perhaps slightly less band noise) than solution 2
> above.)
> ==
> The full layout of the tower and two wire antennas:
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> Tower is 48'. At 46' or so, I have a 10' metal horizontal cross boom for
> pulleys (see below) At 50' I have a 6 element log periodic for 13-30 mhz.
at
> 60' I have a dual band homebrew J-Pole for 2/70cm. So the total vertical
> height is about 65', with whatever loading the LP has. The LP only has a
14'
> boom.
>
> So, I have a 48' tower with a 10' cross boom at the top section holding a
> pulley on each end. One pulley has the CW-80 OCF feedpoint on it with coax
> hanging down 5' away and parallel to the tower, to ground level where it
> goes into the pipe, underground for about 50' to the shack.
>
> The other pulley on the other side of the cross boom holds up my 80m
> inverted L...about 42' vertical and then a sloping wire to complete its
> proper length for 80m. (about 25' or so). Its feedpoint is about 6" above
> ground level above a radial plate with 33, 60' radials made of #14 THHN
> (insulated) wire, stapled to the lawn. The vertical wire is about 5' away
> and parallel to the tower (on the opposite side of the tower from the
CW-80
> OCF.
>
> Hopefully, this clears things up.
>

> The only experiment I'm left with is adding a KW-80 80m trap to the 80m
> inverted L and then adding sufficient wire to get resonance on 160. I take
> from your prior comments that you don't think this arrangement will work
any
> better than the "dumb luck antenna" I stumbled into. I'm inclined to
agree,
> as the 42' vertical section of the Inverted L isn't all that great for
> 160...but one never knows.
>
> I just don't want to compromise the current performance of the 80m
Inverted
> L...it is doing a wonderful job on 80m. I worked England on cw and S92RI
in
> Sao Tome & Principe Is.on SSB, first call. (West Africa). Making repeated
> observations comparing the CW-80 (conventional feed) and the Inverted L
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> shown the Inverted L receive strength about 2 S-units better on paths
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> 1000 or 1500 miles. On real DX paths, the Inverted L is quite a bit
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> than the CW-80. Of course, the noise level on the Inverted L is higher
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> on the CW-80...all the time. It is rare that I have to listen on the CW-80
> and Transmit on the Inverted L....but it has happened. This inverted L
> project has been one of my most enjoyable projects in ham radio in years.
> Measuring the input Z as I went from 0,2,4,8,16,26,33 radials was a rush,
as
> was running 2:1 vswr bandwidth changes with each radial increment
increase.
> The results were downright text book! Falling input Z, decreasing 2:1 vswr
> bandwidth as radials were added. Nice predicatable slope.
>
> When Reg gave me his rule of thumb equation for radiation resistance of an
> inverted L, that allowed me to begin calculating efficiency based on
> feedpoint Z...further fun. And, to compliment Reg, I found two other
sources
> for the calculation of Rrad of an inverted L and they both agreed with Reg
> within an ohm (about 25.4 ohms predicted)...although their formula was
> different. Reg must have some sort of magic reference library, or he has
> made a bajillion measurements. No matter, his formula worked and was
> confirmed by two other sources. So far, I've been able to lower my input Z
> to about 29 ohms, so my efficiency (I know... a crude measurement at best,
> but better than nothing) is 25.4/29 or 87%. I'll be adding an additional
17
> radials when weather and motivation improve, for a total of 50 radials.
I'm
> not expecting any real improvement in performance, but I have the wire, I
> have the plate, I have the ss hardware, and I have the lawn staples. If I
> break 90%, I'll be very surprised.
>

> Again, thanks for taking the time to chat about my two projects.
>
> 73,
>
> ...hasan, N0AN
>
>
>
>

1106. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 20:49:19 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <1v52u1hl9rfl2l3m4hbvd6bo8ito9pt961@4ax.com>
Source record: 64717

On Wed, 1 Feb 2006 12:59:11 -0600, "hasan schiers"
<schiers@netins.net> wrote:

>==========
>1. Feeding the center conductor of the Inverted L. Coax runs underground 50'
>or so, then connects to my radial plate/coax connector. That arrangement
>stunk. Band noise S-0, strong signals S-7. Worked about 10 or 15 stations..
>Lots of calls unanswered. VERY PREDICTABLE, a poor performer to be sure.
>
>2. Feeding the Inverted L conventionally...same result as 1 above. Perfectly
>predictable.

Hi Hasan,

You say the Inverted L works on 80, so we will leave that alone.

>END OF Inverted L Experiment.
>==========
>Begin CW-80 Experiment: (OCF Dipole with Line Isolator) up 42'. 85' one
>side, 51 feet other side.
>
>CW-80: 50' underground coax, then about 45' of vertical coax to the
>feedpoint of the CW-80 (OCF)
>
>1. In other
>words, I didn't just plug the CW-80 coax into the tuner and try to tune it
>up on 160. I was afraid this might cause the "Line Isolator" to fry (the one
>located 22' below the feedpoint of the CW-80)

Aside from the odd tail (the drop to the choke), yes you do stand a
real chance of Common Mode current due to the deliberate imbalance
(the Off Center of the OCF Dipole).

However, when you are driving both sides shorted (or even just one,
singly), the choke is going to be engaged and become a loss (this may
be one reason why it matches well). This is the nature of choking
afterall. If it is built to present enough Z in the 160M band, it
could even disconnect the top hat (but that is not what you are
reporting). Something about the "Line Isolator" seems to lack a
choking action (which further suggests it doesn't choke and it doesn't
isolate).

Anyway, low 160M dipoles nearly always have dismal reports here. On
the other hand, strapping both side of the driveline together and
feeding that, as you say "random wire," often brings good results if
the dipole is high enough. Low/High? and for the same height for the

same band? The kicker is one is horizontal polarization, the other vertical. That height is too low for horizontal, but suits vertical polarization better.

>3. Shorted the center conductor to the shield and fed that to my tuner
>center conductor output as a random wire. (Thus using both the shield and
>the center conductor in parallel as a "random wire". This configuration did
>not work any better (and perhaps slightly less band noise) than solution 2
>above.)

Perhaps because with a hot shield, and ground so close for so great a distance....

>==========
>The full layout of the tower and two wire antennas:
>
>Tower is 48'. At 46' or so, I have a 10' metal horizontal cross boom for
>pulleys (see below) At 50' I have a 6 element log periodic for 13-30 mhz. at
>60' I have a dual band homebrew J-Pole for 2/70cm. So the total vertical
>height is about 65', with whatever loading the LP has. The LP only has a 14'
>boom.

Sounds like a perfect platform for a top loaded 160M vertical. Take a cue from your recent success with that polarization and work with what nature has given you.

>Hopefully, this clears things up.
>
>The only experiment I'm left with is adding a KW-80 80m trap to the 80m
>inverted L and then adding sufficient wire to get resonance on 160. I take
>from your prior comments that you don't think this arrangement will work any
>better than the "dumb luck antenna" I stumbled into. I'm inclined to agree,
>as the 42' vertical section of the Inverted L isn't all that great for
>160...but one never knows.

It's a 1/16th wave tall (or a quarter of a quarter), but top loading will boost that to maybe 1/12th wave tall - still no great shakes. However, experience has shown you were surprised with a "dumb luck antenna" that has no more advantage in height. Thus it follows that even as short as that still brings reward.

The long and short of it is that there is probably little to gain (pun intended) with more work. I would still suggest moving the feed point away from the back of your tuner, and:
>>The only improvement I would see is to break the OCF Dipole's coax at
>>ground level and feed THAT shorted together with the coax coming from
>>the shack (the newly broken end). Attach the short to the center
>>conductor, and the shield of the coax from the shack going to the
>>ground field. When you want to use the OCF Dipole in the conventional
>>way, open the short, remove the ground and connect in the conventional
>>way. This could be reduced to a couple of switches at ground level.

The absolute long and short of it is: "don't look a gift horse in the mouth."

73's
Richard Clark, KB7QHC

1107. Re: Why did this work (160m antenna)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 21:04:57 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <drr7pq$mq6$1@news.netins.net>
Source record: 64718

Hi Chuck,

The lawn staples are from DX Engineering (as was the beautiful radial plate with bulkhead coax connector).
They are about 6 inches long, a rectangle, maybe 1 inch wide, and heavy enough that you can pound them in with a hammer, as long as your soil isn't concrete. Sold in packages of 10 or 20, I think. Quite reasonably priced. I only have one staple per wire now (doing it in the middle of winter made me move quickly between ice and mud patches). I'll put down a staple every 10' or so when things dry out.

Google DX Engineering and you will find there web site. From there it's pretty easy to find stuff.

73,

...hasan, N0AN

1108. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 21:19:18 UTC
From: de Mac <de.Mac.22l0wg@news.radiobanter.com>
Message-ID: <de.Mac.22l0wg@news.radiobanter.com>
Source record: 64724

Finally, a horizontal dipole radiates best when broadside on. Unless
it is rotateable it has weaknesses in its service area.

If I had to choose, I'd always choose a half-wave 80m vertical in
preference to a half-wave dipole.

Reg.

all antennas are a trade off
no antenna is better than some other antenna at everything
what is better can be very subjective

can you make it, do you half to buy it, can you aford it,
do you have room for it, half to hide it from the neighbors,
how high can you put it up, any big trees handy for hanging wires

must your antenna work all bands from 80 to 10
or just be great on one or two bands
what band, what use, rag chew, dxing, contest, what kind of test
Cal. qso party is quite diffrent from CQ wpx

80 meter 1/2 wave vert is 130 ft high how many ops
can put up a 130 ft vertical in their back yard

store bought ground mounted multiband verticals
good ones are expensive, nearly none are close to 1/4 wave high,
and a good ground system is a must

always lusted after a high gain high tower vert
but they now sell for about 875 dollars u.s.
and
my xly is not about to let me tear up her flower gardens
to lay out a ground system

on 75/80 out to 750 miles a 1/4 wave vert
is about as good as a dummy load

good in the clear, big vertical is a great dx antenna
but if you are going to dx with it on 160, 80, or 40
you are going to half to also put up a receive antenna
verticals are horrid receive antennas on low bands
as they pick up every bit of man made qrn

20 meter ground plane feed point at 35 or 40 ft is a wonderfull dx
antenna

lower bands horizontal pattern of horizontal half wave dipole
do not come in to play unless at least 1/2 wave above ground

dipole has been the most popular amateur radio antenna for over 60 years
reason
easy to make, easy to put up and keep up,
for most general purpose use work very well

which is better dipole or vertical, is a question that has no answer

best antenna is the one you have up right now

mac w8znx

--
de Mac

1109. 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-01 21:25:48 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <wH9Ef.4$%84.1@tornado.southeast.rr.com>
Source record: 64719

I am attempting to setup a 802.11b bridge between my location (siteA) down the powerlines but off to the right NLOS (siteB) roughly 1 mile away. Now their is nothing between the powerline and siteB except it is off the powerlines to the right by about 20-40 feet. No trees, hills or any other unforeseen obstacles other than I simply cant see it due to the location. I guess the easy way to explain the setup is picture a L. I have successfully been able to broadcast my signal in reverse from siteA down the powerline even further than siteB but it was a strait shot and also was NLOS due to a house being directly in front. This was using a 24db parabolic grid antenna. My question and what I am trying to get my head around is if I could get by with just a standard wireless router without any external addon or booster antenna at siteB. Common sense tells me that even though its shaped similar to a L as long as the signal coming off siteB is present at the end of the powerline then I should be able to pick it up from the grid antenna. I plan on trying it this weekend but I am hoping someone can elaborate on this before I get my hopes up to much.

--
Poor planning on your part does not constitute an emergency on my part.

1110. AO PRO software

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 00:03:05 UTC
From: rgaschk <rgaschk@astound.net>
Message-ID: <drrhhr$7hi$1@news.astound.net>
Source record: 64720

I have tried to buy a copy of AO PRO from Brian Beezley but he refuses saying he has stopped selling to Hams because they bootleg software.

I would like to borrow a copy, I only need to optimize one antenna for some guys for MARS and CAP use.

Or better yet, buy it from you and I'll pay whatever you paid Brian for it.

73, ray w6fya

1111. New program - Antenna Counterpoise.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 02:05:43 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drrpdn$5g4$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64721

A coil-loaded counterpoise at a low height above ground is used to provide an artificial ground for an antenna when, for some reason, a true ground connection is not possible or there is not enough space to erect a full 1/4-wavelength horizontal wire.

The principal effects of low height are a loss resistance induced in the wire from the ground, and a reduction in propagation velocity along the wire.

A counterpoise can be considered to be an artificial ground. Its input resistance at resonance is equivalent to the input resistance of a true ground connection but its resistance will never be as low as a good ground.

To provide a lower input resistance three or four counterpoises can be used in parallel. Or they can be resonant on different bands.

New program C_POISE estimates the performance of a single coil-loaded counterpoise. The number of turns on a coil of given length and diameter needed to resonate a low wire to 1/4-wave resonance is calculated. The input resistance at resonance is also estimated..

All program output data is approximate due to the very low height of the wire above ground and uncertainty in the characteristics of the soil or whatever other materials may be under the wire. The wire may be allowed to rest on the ground surface but uncertainty will be at a maximum. It will nearly always be needed to prune the wire length for resonance. Or when the wire length is fixed the coil turns may need adjustment.

When wire height exceeds wire length accuracy is much improved. Input resistance at resonance will be fairly small. Working Q will be high and the counterpoise will behave as a short antenna. For precise resonance the wire will still need pruning.

Download program C_POISE in a few seconds from website below and run immediately.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

1112. Antenna for Rock-Mite

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 02:59:38 UTC
From: Tod Glenn <webmaster@cordite.com>
Message-ID: <webmaster-5918D5.19593701022006@news.usenet-access.com>
Source record: 64722

Greetings all.

I am interested in suggestions for a compact and portable antenna for my Rockmite 40m QRT xceiver. Something I can pack easily is ideal, optimized for 7.040. Besides the baside wire dipole, anyone have some suggestions?

-----== Posted via Newsfeeds.Com - Unlimited-Unrestricted-Secure Usenet News==----
http://www.newsfeeds.com The #1 Newsgroup Service in the World! >100,000 Newsgroups
---= East/West-Coast Server Farms - Total Privacy via Encryption =---

1113. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 03:00:37 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43E175D5.5090709@comcast.net>
Source record: 64723

Arie,

Thank you. I tried your suggestion to capture all the segments in a helix. The first problem is "the edit option" is not always available. Sometimes the edit is not available. Have you seen this? Anyway, it is not possible to use edit. Control M does not work either.

Dan

Arie wrote:
> Hello Frank and Dan,
>
> red your discussions with interest. Some few answers:
>
>
>>The helix also appears with the axis normal to the edit page
>
>
> Yes, you are correct. To get another orientation select XZ, YZ or XY
> plane,
> before creating the helix.
>
>
>>Have not figured out how to rotate it yet
>
>
> Select all segments using Ctrl+A or select the required segments by
> drawing
> a rectangle around them and select 'Edit->Rotate/Move wires' on the
> menu-bar.
>
>
>>Every once in a while the editor converts all my segments into wires. All of a
>>sudden the card file will jump from a few cards with segments to dozens of
>>cards with one segment
>
>
> Hmmm, do not have an explanation for this yet. Did you change the
> segmentation-
> density between subsequent edit sessions ?
>
>
>>I wonder about the accuracy of the power calculations. They seem too high.
>
>

> Please, let me know if you think you found an error. I would very much
> like to
> hear this,
>
> Thanks for 'testing' and remarks,
>
> Arie.
>

1114. Re: 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 03:27:51 UTC
From: fmmck@aol.com
Message-ID: <fmmck-0102062227510001@ac8212f2.ipt.aol.com>
Source record: 64726

In article <wH9Ef.4$%84.1@tornado.southeast.rr.com>, "Bryan Martin"
<spam@myplaceinspace.com> wrote:

> My question and what I am trying to get my head around is if I
> could get by with just a standard wireless router without any external addon
> or booster antenna at siteB. Common sense tells me that even though its
> shaped similar to a L as long as the signal coming off siteB is present at
> the end of the powerline then I should be able to pick it up from the grid
> antenna.

Bryan-

I don't think the power line has anything to do with your signal.

One technique that has been used to get around corners, is use of a
passive reflector (metal grid?), sometimes called a "billboard". It is a
lossy method, but not nearly as bad as what you seem to be trying to do!

The structures between sites may not block all signals. With 24dB at each
end, there might be enough signal to complete the link if two parabolic
antennas were pointed at each other.

Your greatest chance of success would be to erect a mast at each end, and
mount the parabolic antennas high enough to shoot line-of-sight above any
obstacles.

How do you measuring success? One program that works with a wireless
card, is called Stumbler. (I have the Macintosh version.) It detects
wireless hotspots, and gives an indication of signal strength.

Fred

1115. Re: New program - Antenna Counterpoise.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 04:59:34 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43E191B6.606@comcast.net>
Source record: 64725

Reg,

Thanks. I assume the coil is located next to the feed point?

In the case of a single ground radial what can you say about the radiation pattern?

Thanks,

Dan

Reg Edwards wrote:
> A coil-loaded counterpoise at a low height above ground is used to
> provide an artificial ground for an antenna when, for some reason, a
> true ground connection is not possible or there is not enough space to
> erect a full 1/4-wavelength horizontal wire.
>
> The principal effects of low height are a loss resistance induced in
> the wire from the ground, and a reduction in propagation velocity
> along the wire.
>
> A counterpoise can be considered to be an artificial ground. Its
> input resistance at resonance is equivalent to the input resistance of
> a true ground connection but its resistance will never be as low as a
> good ground.
>
> To provide a lower input resistance three or four counterpoises can be
> used in parallel. Or they can be resonant on different bands.
>
> New program C_POISE estimates the performance of a single coil-loaded
> counterpoise. The number of turns on a coil of given length and
> diameter needed to resonate a low wire to 1/4-wave resonance is
> calculated. The input resistance at resonance is also estimated..
>
> All program output data is approximate due to the very low height of
> the wire above ground and uncertainty in the characteristics of the
> soil or whatever other materials may be under the wire. The wire may
> be allowed to rest on the ground surface but uncertainty will be at a
> maximum. It will nearly always be needed to prune the wire length for
> resonance. Or when the wire length is fixed the coil turns may need
> adjustment.
>
> When wire height exceeds wire length accuracy is much improved. Input
> resistance at resonance will be fairly small. Working Q will be high
> and the counterpoise will behave as a short antenna. For precise
> resonance the wire will still need pruning.
>

> Download program C_POISE in a few seconds from website below and run
> immediately.
> ----
> ....
> Regards from Reg, G4FGQ
> For Free Radio Design Software go to
> http://www.btinternet.com/~g4fgq.regp
> ....
>
>

1116. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 07:52:30 UTC
From: nm5k@wt.net
Message-ID: <1138866750.041474.65870@g49g2000cwa.googlegroups.com>
Source record: 64727

>If I had to choose, I'd always choose a half-wave 80m vertical in
>preference to a half-wave dipole.

In general, I'd prefer the dipole on 80m. But I work mostly
close in within say 600 miles on average. A dipole will smoke
most verticals at those short distances. If the dipole is at least
30-40 ft off the ground, it will still be capable of dx.
If I worked all dx on 80, I'd rather have the vertical, but being I
don't,
I prefer the dipole.
Each band is different, and it always depends on what path/distance
etc, I want to work as far as the preferred antenna.
In general, I'd prefer the vertical on 160m.
Dipole for 80 and 40, and usually 20.
I've tried both a 1/4 GP and a dipole on 20m for average use,
and found I prefer the dipole. Probably ditto for 17,15.
But on 10m, I prefer a 1/2, 5/8 vertical if I can't have a beam.
On 10m, you see quite a bit of local chatter, and most tend
to run vertical if they want a decent ground/space wave.
It also gives them a good dx signal. If you run a dipole on 10m,
your long haul will be good, but local operation fairly poor.
There really is no best type antenna except to suit the job at
hand. If I'm on 40m in the day, give me me a good dipole,
loop, etc . But 40m at night 800-1000 miles to the coasts?
I'd rather be sitting in my truck running the mobile. No joke.
It will do a better job vs my appx 40 ft tall dipole. That
was tested over and over again. No fluke of the band cdx.
On 40 at night, which is best will nearly always be distance
determined. Look at the lowly efficiency of the mobile vs
the dipole. At night, it doesn't really mean squat. What matters
is that you have radiation at the angle you need to make that
hop. My mobile spits more rf at the desired angle than my
40 ft high dipole does at those semi low angles despite being
half crippled as far as efficiency vs a full size antenna.
So polarization is nothing to ignore if you want the best
bang for the buck. I bet my mobile ant sitting sideways would
be pretty lame in that case. Or say take two like mobile antennas
and make a short dipole. It would stink up the place on those
long hauls vs the normal vertical mobile antenna. But it might be
slightly better in the day working 200 miles away.
The best is to have both. :) And use a switch to be able to
quickly compare. You will see some interesting things as
far as band cdx, signal fluctuations, etc over time.
It really boils down to using experience working the various bands,

at the various times of day, season, to know which will likely
be the best at a given time. It's 1.49 in the AM here right now.
If I had to get on 40m right now, give me the vertical any day.
That would change in a few hours though when I started losing the
long haul stuff and had it replaced by the various old farts and
rednecks I work on a more local scale. :/ I'd then be on the dipole.
MK

1117. Re: editing 'helix' construct with 4nec2 graphical editor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 12:12:42 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1138882362.222972.55220@f14g2000cwb.googlegroups.com>
Source record: 64728

Hello Dan,

concerning the 'Edit' option being available, this depends on the allowable actions for the object-type selected to edit and/or add. The number of items under the 'Edit' option also depends on the object-type selected.
You can also click a wire, EX or LD and then use the right mouse-button to enter the edit-menu.

About the Control-M, probably I forgot what to use it for. Could you give me a hint what you would like to do with this.

Arie.

1118. Re: New program - Antenna Counterpoise.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 13:18:31 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drt0r7qvg1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64729

> Reg,
>
> Thanks. I assume the coil is located next to the feed point?
>
> In the case of a single ground radial what can you say about the
radiation pattern?
>
> Thanks,
>
> Dan
==========
Yes, the loading coil is located next to the feedpoint. I forgot to
mention it in the program notes.

The antenna used with a counterpoise will very likely be a simple
vertical or an inverted-L

When the counterpoise is not near the ground the radiation pattern of
the whole system, antenna plus counterpoise plus feedline, will be
somthing like that of a bent, off-centre-fed dipole, which extends
between the top of the vertical antenna and the end of the
counterpoise, and slopes at an angle relative to the vertical.

It will be non-descript and have no interesting properties, not worth
the time and trouble of modelling with Eznec.

When the counterpoise is lying on the ground the radiation pattern
will be similar to that of the antenna alone. But it cannot be
modelled with Eznec.

Counterpoises are useful because they allow end-fed antennas to work
moderately well, at one frequency, when a good ground connection is
not available. With an antenna wire they behave as an off-cenre-fed
bent dipole with one end near the ground.

Reg.

1119. Re: Antenna for Rock-Mite

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 13:57:01 UTC
From: TSnCS <noboday@home.com>
Message-ID: <X_ednTlxy54ckn_enZ2dnUVZ_sudnZ2d@comcast.com>
Source record: 64730

If it's QRT, do your really need an antenna?? (Sorry, couldn't resist)

"Tod Glenn" <webmaster@cordite.com> wrote in message
news:webmaster-5918D5.19593701022006@news.usenet-access.com...
> Greetings all.
>
> I am interested in suggestions for a compact and portable antenna for my
> Rockmite 40m QRT xceiver. Something I can pack easily is ideal,
> optimized for 7.040. Besides the baside wire dipole, anyone have some
> suggestions?
>
>
> -----== Posted via Newsfeeds.Com - Unlimited-Unrestricted-Secure Usenet
> News==----
> http://www.newsfeeds.com The #1 Newsgroup Service in the World! >100,000
> Newsgroups
> ---= East/West-Coast Server Farms - Total Privacy via Encryption =---

1120. Re: 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 16:01:50 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <e0n9b3-r7l.ln1@p400bob.personal.cox.net>
Source record: 64731

Hi Bryan

I'd try and model this for you but the s/w I use is broken at the moment.

You can calculate path loss over an LOS path fairly easily. If you start with the RF output in dBm, add antenna gains, subtract the path and cable losses you'll get a close result. This can then be applied against the receiver sensitivity (I use to use -87dBm for 802.11 links) If you want to model in the existence of a reflector or (say) back to back yagi you do it is two paths using the received power at the reflecting device as the source power for the next minus about 3dB. The results tend to be less than encouraging in most places but it depends on the application. One study I did (for example) was to get a 410MHz signal into a railway cutting on the edge of a mountain. (ie no source of reflection from the other side) The 25W TX was about 2km away and we modeled two back to back 13dBi antennas. With -82dBm as the lowest specd RX signal we only got about 300m range from the reflecting array.

Freds suggestion of using a billboard is however a good one and simple to experiment with. I also agree that the powerline wont be much help.

Pls tell us how it works out!

Cheers Bob VK2YQA

Bryan Martin wrote:
> I am attempting to setup a 802.11b bridge between my location (siteA) down
> the powerlines but off to the right NLOS (siteB) roughly 1 mile away.

1121. Re: Antenna for Rock-Mite

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 16:43:49 UTC
From: johan aeq <pe1aeq@amsat.og>
Message-ID: <e07ff$43e23758$52ad139c$24603@news.versatel.nl>
Source record: 64732

buy a fishing rod and hang up a inverted v.
If you feed it with 300Ohm line or even loudspeaker cable you don't need a
balun up the rod.
Match it with a 1:1 balun or a simple Zmatch (emtech).
It works simple and very good...

"TSnCS" <noboday@home.com> schreef in bericht
news:X_ednTlxy54ckn_enZ2dnUVZ_sudnZ2d@comcast.com...
> If it's QRT, do your really need an antenna?? (Sorry, couldn't resist)
>
>
> "Tod Glenn" <webmaster@cordite.com> wrote in message
> news:webmaster-5918D5.19593701022006@news.usenet-access.com...
> > Greetings all.
> >
> > I am interested in suggestions for a compact and portable antenna for my
> > Rockmite 40m QRT xceiver. Something I can pack easily is ideal,
> > optimized for 7.040. Besides the baside wire dipole, anyone have some
> > suggestions?
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> > http://www.newsfeeds.com The #1 Newsgroup Service in the World! >100,000
> > Newsgroups
> > ---= East/West-Coast Server Farms - Total Privacy via Encryption =---
>
>

1122. ATAS-120/Screwdriver question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 17:55:08 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <19udnaOc-K772n_eRVn-hA@comcast.com>
Source record: 64733

I recently installed a Yaesu FT-857D and ATAS-120 on my truck to replace the truck and rig that were destroyed in Hurricane Katrina.

I have one nagging problem with this new installation I did not have with the previous installation. With the new installation, I went through all the setup steps with the rig and antenna. With my old installation, when I changed bands and hit the PTT button, the antenna automatically tuned itself -- the display would say WAIT and the meter would display high SWR -- I could hear the antenna tuning, the SWR would drop, and the rig would be ready to use on the new frequency.

Now, the antenna does not tune automatically upon changing bands or upon wide freq changes within the same band. If I set the rig on memory function "k" and hit the TUNE button, the antenna tunes, the display says WAIT, SWR shows high, and the antenna tunes then the rig beeps and I'm ready to go.

Have I missed something in the setup to make this thing tune automatically upon band change? I have searched and searched the manaul and don't find anything that I did not do when I installed the rig.

Now, I leave the memory set on "k" and just hit the TUNE button when I change bands, but, being basically lazy, I want the rig to do all the work for me.

Second problem: This morning I worked 40, 20, and 15 meters. Turned the rig off, went inside, came back out, tried to change bands and the antenna would not tune. I went back to the antenna and jiggled the upper trombone portion -- the part the moves up and down when it tunes -- went back and it worked fine. Is there some way to lube the ATAS-120, or, was this just a glitch that will happen from time to time?

Thanks.

1123. Mobile antenna mount

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 18:00:43 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <a9idnVevv8Eo1X_enZ2dnUVZ_sydnZ2d@comcast.com>
Source record: 64734

I recently installed a Yaesu FT-857D on my truck. I installed two antennas -- ATAS-120 for HF and 6, dual-bander for VHF/UHF.

I used the stake hole mount from GeoTools -- this is one slick antenna mount. If you're looking for a no-holes mount and don't like the trunk-lip mounts, check it out. I mounted my antennas in the rear stake holes. I use my truck as a work truck and, so far, the antennas have not interfered with hauling. If they do, it's a simple matter of unscrewing the antenna, screwing a protective cap onto the mount threads, and hauling away.

No, I am not getting a commission from GeoTools -- it worked for me and may work for someone else.

http://www.geotool.com/antmount.htm

1124. Re: 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-02 19:07:28 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <QLsEf.439$%84.100@tornado.southeast.rr.com>
Source record: 64735

Well the downside is that I dont think I can pull off the reflector senerio or complete line of site going over the tree's. At the end of this powerline is someone else's lot so I can't place anything on or around that. I only have permission to put the unit in the building located behind someone's house. Ideally I would rather not have any external antenna's on the building if at all possible to make the intrusion on property as light as possible. Thats what brought me to my question. The building is just an old cheap yard shed more than anything. It has power and 2 windows on the back side facing the back of the lot. I hope to be able to place the wireless unit close to the window which should help push the signal. If the building was another 25-30 foot more to the right I might would have LOS to it but that is also when you cross over onto someone elses land which is not an option. As for seeing the signal I am almost completely positive the grid antenna would be able to intersect the wireless signal at the end of the powerline but I am unsure if that is enough to get the signal back?

To see a very rough layout of what I am refering to see this
http://home.triad.rr.com/tempdir/images/layout.jpg

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:e0n9b3-r7l.ln1@p400bob.personal.cox.net...
> Hi Bryan
>
> I'd try and model this for you but the s/w I use is broken at the moment.
>
> You can calculate path loss over an LOS path fairly easily. If you start
> with the RF output in dBm, add antenna gains, subtract the path and cable
> losses you'll get a close result. This can then be applied against the
> receiver sensitivity (I use to use -87dBm for 802.11 links) If you want to
> model in the existence of a reflector or (say) back to back yagi you do it
> is two paths using the received power at the reflecting device as the
> source power for the next minus about 3dB. The results tend to be less
> than encouraging in most places but it depends on the application. One
> study I did (for example) was to get a 410MHz signal into a railway
> cutting on the edge of a mountain. (ie no source of reflection from the
> other side) The 25W TX was about 2km away and we modeled two back to back
> 13dBi antennas. With -82dBm as the lowest specd RX signal we only got
> about 300m range from the reflecting array.
>
> Freds suggestion of using a billboard is however a good one and simple to
> experiment with. I also agree that the powerline wont be much help.
>
> Pls tell us how it works out!
>
> Cheers Bob VK2YQA

>
> Bryan Martin wrote:
>> I am attempting to setup a 802.11b bridge between my location (siteA)
>> down
>> the powerlines but off to the right NLOS (siteB) roughly 1 mile away.

1125. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 02:57:47 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <yvSdnQj37doxW3_enZ2dnUVZ_tCdnZ2d@adelphia.com>
Source record: 64736

nm5k@wt.net wrote:
>>If I had to choose, I'd always choose a half-wave 80m vertical in
>>preference to a half-wave dipole.
>
>
> In general, I'd prefer the dipole on 80m. But I work mostly
> close in within say 600 miles on average. A dipole will smoke
> most verticals at those short distances. If the dipole is at least
> 30-40 ft off the ground, it will still be capable of dx.
> If I worked all dx on 80, I'd rather have the vertical, but being I
> don't,
> I prefer the dipole.
> Each band is different, and it always depends on what path/distance
> etc, I want to work as far as the preferred antenna.
> In general, I'd prefer the vertical on 160m.
> Dipole for 80 and 40, and usually 20.
> I've tried both a 1/4 GP and a dipole on 20m for average use,
> and found I prefer the dipole. Probably ditto for 17,15.
> But on 10m, I prefer a 1/2, 5/8 vertical if I can't have a beam.
> On 10m, you see quite a bit of local chatter, and most tend
> to run vertical if they want a decent ground/space wave.
> It also gives them a good dx signal. If you run a dipole on 10m,
> your long haul will be good, but local operation fairly poor.
> There really is no best type antenna except to suit the job at
> hand. If I'm on 40m in the day, give me me a good dipole,
> loop, etc . But 40m at night 800-1000 miles to the coasts?
> I'd rather be sitting in my truck running the mobile. No joke.
> It will do a better job vs my appx 40 ft tall dipole. That
> was tested over and over again. No fluke of the band cdx.
> On 40 at night, which is best will nearly always be distance
> determined. Look at the lowly efficiency of the mobile vs
> the dipole. At night, it doesn't really mean squat. What matters
> is that you have radiation at the angle you need to make that
> hop. My mobile spits more rf at the desired angle than my
> 40 ft high dipole does at those semi low angles despite being
> half crippled as far as efficiency vs a full size antenna.
> So polarization is nothing to ignore if you want the best
> bang for the buck. I bet my mobile ant sitting sideways would
> be pretty lame in that case. Or say take two like mobile antennas
> and make a short dipole. It would stink up the place on those
> long hauls vs the normal vertical mobile antenna. But it might be
> slightly better in the day working 200 miles away.
> The best is to have both. :) And use a switch to be able to
> quickly compare. You will see some interesting things as

> far as band cdx, signal fluctuations, etc over time.
> It really boils down to using experience working the various bands,
> at the various times of day, season, to know which will likely
> be the best at a given time. It's 1.49 in the AM here right now.
> If I had to get on 40m right now, give me the vertical any day.
> That would change in a few hours though when I started losing the
> long haul stuff and had it replaced by the various old farts and
> rednecks I work on a more local scale. :/ I'd then be on the dipole.

In support of Cecil's project of listening on a horizontal, while transmitting on a vertical, I have tried an experiment this evening, and will report on the results so far

While listening to an OK3 station this evening on 3.7995, I tuned two separate radios to the frequency.

Radio 1 is an IC-745 with a Butternut HF6V. 20 some radials. decent soil. Seems to work "well".

Radio 2 is an IC-761 on an OCF dipole. Also works pretty "well"

Noise level on the Vertical setup is S-8.

Noise level on the horizontal is S-4.

Mr. OK3 is at almost S-9 on the Vertical, and around S-7 to nearly S-8 on the horizontal.

Of course these two rigs have not been calibrated against each other. So I can only say that at least from his location, he is putting a bit stronger a signal (as far as the antenna is concerned) into the Middle of Pennsylvania .

But here is the interesting thing. On the horizontal antenna, the listening is a whole heckava lot more pleasant. Another item of interest is that in a recent exchange between the OK3 and a VE3, I could catch the Canadian station on my horizontal setup, while he was in the noise on the vertical.

This is an early stage of the experiment, but
I believe that there is a lot to say with the lower noise on the horizontal antenna station.

- 73 de Mike KB3EIA -

1126. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 09:36:26 UTC
From: richardharrison@webtv.net
Message-ID: <476-43E3241A-1@storefull-3255.bay.webtv.net>
Source record: 64737

Reg, G4FGQ wrote:
"On the other hand, a simple vertical does reasonably well when working just across country because of the short propagation path, almost straight up and down again, even via the groundwave for a very short distance."

True, but the thread is: "Verticals versus Horizontal Dipoles". Reg`s choice, I think.

Verticals have a null toward the zenith which tends to impair their "straight up and down again" performance. The horizontal dipole`s nulls are at its tips, too, but are pointed elsewhere, not at the zenith. This mey actually avoid some noise and interference beyond that originating in the directions of straight up or down again. As much noise is vertically polarized, it may be rejected by ctoss-polarization.

The horizontal dipole performs pretty well in the directions near the zenith when it is elevated at less than 1/2-wavelength in height, and for frequencies below the maximum usable frequency at near vertical incidence. At 1/2-wavelength elevation, the horizondal dipole develops a null toward the zenith, too.

Propagation of H-F signals via the groundwave is for a very short distance indeed. Frequency has a pronounced effect upon sffective earth conductivity. Conductivity falls fast with increasing frequency due to skin effect. . The earth layer penetrated by the wave thins as frequency increases, making it less conductive and increases loss. For example, over soil of 10 mmhos/m, a fairly common value, a transmitter would have to ptoduce 1,000 times more power at 5 MHz to produce the same signal at 10 miles as would a 0.5 MHz transmitter.

The earth`s attenuation of low-angle radiation from a 1/4-wave vertical antenna has a significant effect on the vertical radiation pattern. ee Fig. 54-1 on page 465 of B. Whitfield Griffith`s "Radio-Electronic Transmission Fundamentals". This figure shows field intensity curves versus vertical angle from a 1/4-wave vertical antenna radiating 1 kilowatt over earth of average conductivity. Anything below about 5-degrees is gone, eaten by the earth`s losses.

I conclude that for high frequencies, unless you have good or very good conductivity soil, horizontal polarization will likely serve you better than vertical polarization.

If you are at sea or immediately on the sea shore, you likely may do better with vertical polarization.

There are so many variables that it would likely be best to have antennas of both polarizations available, and to use the antenna which gave the best signal in the particular instance.

Best regards, Richard Harrison, KB5WZI

1127. Re: New program - Antenna Counterpoise.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 10:06:16 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drv9uo$9vf$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64738

> Reg , What is your opinion about the effectiveness of (a) counter
poise(s)
> of any length in series with an adjustable series resonance circuit
> ,adjusted for maximum RF current at the operating frequency ?

> Frank GM0CSZ / KN6WH
==========

Frank, the effectiveness of a counterpoise depends on its input resistance. The lower this resistance better it is. It is the 'ground' connection for the antenna. (And the transmitter).

But there's no point in making it longer than 1/4-wave. This increases coupling with the ground, increases loss resistance and also undesirably increases radiation resistance. The counterpoise then behaves more like a very low antenna.

When it is 1/2-wavelength long it has a very high input resistance and is entirely non-effective. It may just as well not be there.

At some lengths the loading coil would have to be replaced with a loading capacitor.

Remember, the antenna wire plus counterpoise is behaving as an off-centre fed, bent, dipole with the lower section being very near to the lossy ground. (Whatever the ground is). We don't want the lower section to be TOO long. The current into the counterpoise is the same current as is entering the antenna. If there is an antenna tuning unit it will tune up the counterpoise simultaneously with the antenna. They behave together as one thing!

So there is no point in having a separate tuner just for the counterpoise. Maximum current flows into the counterpoise at the same time as it flows into the antenna proper.

The purpose of the loading coil in the counterpoise is to provide a low impedance connection to the braid of the coaxial feedline. If there is no feedline then it provides an artificial 'ground' for the transmitter plus tuner.

And all the foregoing arises because it is difficult or impossible for the station owner to provide a set of buried ground radials.

Reg, G4FGQ

1128. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 10:11:12 UTC
From: nm5k@wt.net
Message-ID: <1138961472.184345.67410@g44g2000cwa.googlegroups.com>
Source record: 64739

>This is an early stage of the experiment, but
>I believe that there is a lot to say with the lower noise on the
>horizontal antenna station

Probably has a lot to do with the particular sites
though. It's quite possible to be near a noise source
that is mainly vertical polarized. In a case like that, it's
possible it could be a problem. But I never saw the difference
in noise levels you are seeing. At the worst, I might see
appx 2 S units, but sometimes it might only be one, or
even other times , nearly no difference at all. Most of
the noise I would see at this location is power line noise.
It seems to effect both horizontal and vertical nearly equally. :(
Probably cuz much is radiated by horizontal power lines.
I've never tested it, but I think if you are in a noiseless location,
the difference would be fairly small as far as meter readings
just measuring the average atmospheric noise. The reason I
say this is because sometimes I would see little difference in
noise between the two. But other times I might see more.
But you could see small differences just from the increase in
strength of dx signals. IE: if you had T-storms 1500 miles away,
it's quite likely the vertical will receive them stronger than the
horizontal due to the normal operation of the antennas.
Anyway, I don't totally consider what you see as the norm. "4 s units"
You probably have a local vertical noise source nearby. If it's power
line, etc, you might be able to track it down and get it fixed. :)
I'd be curious to see if you see the same 4 S unit noise difference
over a period of time. Like I say, mine would vary. But noise
never was much of a concern on mine. Never gave it much thought
at all. Kinda weird too being I'm in a big city, in a residential area.

Being mine was elevated at 36 ft at the base, I also had a pretty
good line of sight to any potential noise sources.
The tip of the radiator was at about 68 ft. As far as the VE being
better on the wire, that's probably fairly normal, being he wasn't dx.

Also, as a final note, while your butternut with 20 radials is ok, it
still
isn't quite up to the performance I saw with mine at 36 ft, using a
full size antenna. So I saw a larger signal increase on the dx than you

I bet. Mine was appx equal to a full length monopole with 60 radials,
if ground mounted. I'd have to look, but my ground may be a bit better
too. I'm right on the edge of being in a "30" zone. Of course, raising
efficiency raises s/n equally, but I noticed that I never saw the same

performance I had with the ground plane, when I ran the same full size vertical on the ground with 32 radials. That antenna was about equal to my dipoles at 1500 miles. Maybe a small bit better, but not any 2 S units worth like the GP was. So regardless of some saying the number of radials is not too important, it must be, if you want the best
performance. Sure made a difference here...
Either that, or elevating it above the surroundings makes the difference.
Myself, I think it's about 75% the first, and 25% the second... Elevating
the antenna for sure increased my local ground wave. I could work 50 miles away ground wave easy. I'd have cases in the daytime where I'd lose locals due to the band stretching out. But I could still nail them at
S 9 using the GP, where the dipole would be hard to read backscatter. Of course, if the band was open short, I'd be 10-20-30 over 9 on the dipole
to the same location.
Anyway, I guess you gotta use what works, but I don't think it's totally
normal to see a huge difference in noise between vertical and horizontal
unless something local is the culprit.
MK

1129. Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 12:46:17 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <l7SdnRxtINYOzX7eRVn-iA@comcast.com>
Source record: 64740

Hi,

Pretty sure I'll probably be able to come up with something that will more or less work, but was wondering if any of you folks have a real clever solution for this:

Will be stringing a horiz wire listening only antenna between two trees out back.
Trees have a fair amount of movement, particularly in the winter.

So, I thought I'd fasten one end securely, and then use the pulley arrangement, with a hanging weight, like you see in all the pix for this sort of thing.

But, we get a lot of ice and freezing rain, and I doubt that the pulley would really function well, if at all in the winter.
But, perhaps ?

Think a large metal ring, with a Dacron rope goint thru (one end to the wire end) would be better ?
Coat Dacron with Silicone Spray ?

Or,... ?

Bob

1130. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 13:00:32 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43e3532e_1@newsfeed.slurp.net>
Source record: 64741

"Richard Harrison" wrote:
> The earth`s attenuation of low-angle radiation from a 1/4-wave vertical
> antenna has a significant effect on the vertical radiation pattern. ee
> Fig. 54-1 on page 465 of B. Whitfield Griffith`s "Radio-Electronic
> Transmission Fundamentals". This figure shows field intensity curves
> versus vertical angle from a 1/4-wave vertical antenna radiating 1
> kilowatt over earth of average conductivity. Anything below about
> 5-degrees is gone, eaten by the earth`s losses.

This certainly is not true for frequencies below about 2 MHz. If it was true, MW broadcast stations would have no groundwave coverage -- which of course is the only useful coverage they _do_ have in the daytime.

A monopole vertical radiator of any length up to 5/8-wave, when used with a ground system of ~120 buried radials each ~1/2-wave long, radiates its peak field very nearly in the horizontal plane regardless of the conductivity of the ground in which the radials are buried. This gain is within a few percent of the theoretical peak gain for these radiators when working against an infinite, perfectly conducting ground plane, as was demonstrated by the field tests of Brown, Lewis & Epstein in 1937. This principle has been accepted and used by the FCC and other regulating agencies, and has been field-proven in thousands of installations going back many decades.

Once "launched," the groundwave signal is affected by ground conductivity along the propagation path, earth curvature, obstructions etc. Groundwave path loss increases with increasing frequency, and above some frequency in the low HF range, the groundwave is unable to serve a practical purpose. But that doesn't necessarily mean that the transmit antenna did not generate the groundwave in the first place, ie, that it radiated zero field in the horizontal plane and at very low elevation angles.

RF

Visit http://rfry.org for FM transmission system papers.

1131. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 13:36:50 UTC
From: Doc <ltdoc@yahoo.com>
Message-ID: <1138974047_19567@sp6iad.superfeed.net>
Source record: 64742

One alternative is to use whatever pulley arrangement you can, and to add a spring between the rope and end of the antenna (insulator would probably be worth having too). How big of a spring? Beats me, how big/heavy is your antenna?
- 'Doc

1132. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 13:40:40 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drvmgo$1ku$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64743

My geometric argument that beyond distances of several hundred, perhaps 500 miles, the vertical puts down a stronger signal and receives stronger signals than the horizontal dipole cannot be disputed.

If you can't be heard at 1000 miles or more using a dipole, you are more likely to be heard using a vertical regardless of what antenna the other fellow is using to receive. At great distances you are much more likely to be heard using a vertical at the same average height above its surroundings.

Signal to noise ratio does matter of course.

Local noise level is much greater than received from distance sources for obvious reasons. Local noise is vertically polarised. It comes in via groundwave.

Noise from a distance is randomly polarised. It comes in via the ionosphere. So in towns and cities, with buildings wiring, overhead power and phone lines, where most of us live, the vertical collects more local noise. In the wide open countryside both types of antenna tend to perform equally well on randomly polarised, distant noise levels.

With distant noise and interference and distant signals, both types of antenna result in the same signal to noise ratio in the receiver. But the vertical antenna receives the stronger signal plus noise. If the internal receiver noise is greater than the received signal plus noise then the vertical antenna will win the contest.

However, there is another effect which sometimes gives the dipole the advantage. It is multi-hop propagation.

The angle of elevation of the radio path increases with the number of hops involved. The number of hops depends on the sun-angle and day or nighttime. Across the States or across the Pacific, for example, the propagation loss can be much less with 2 or 3 hops than it is with one or two hops. Waves sometimes bounce between the F2 and E layers. The increase in elevation angle favours the horizontal dipole. And how many amateurs know the number of hops involved at any point in time?

But what eventually favours the vertical over the dipole is their respective service areas. The service area covered by the vertical is many times, far greater than the dipole and so is the world wide distribution of radio amateurs and short-wave listeners.

We have now returned to the simplistic but precise Geometry of the
ancient Egyptians and Greeks. ;o)

Reg, G4FGQ.

1133. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 14:03:18 UTC
From: "Edward A. Feustel" <efeustel@direcway.com>
Message-ID: <W6GdnbUcq6sz_37enZ2dnUVZ_sadnZ2d@giganews.com>
Source record: 64744

"Robert11" <rgsros@notme.com> wrote in message
news:l7SdnRxtINYOzX7eRVn-iA@comcast.com...
> Hi,
>
> Pretty sure I'll probably be able to come up with something that will more
> or less work, but was wondering if any of you folks have a real clever
> solution for this:
>
> Will be stringing a horiz wire listening only antenna between two trees
> out back.
> Trees have a fair amount of movement, particularly in the winter.
>
> So, I thought I'd fasten one end securely, and then use the pulley
> arrangement, with a hanging weight, like you see in all the pix for this
> sort of thing.
>
> But, we get a lot of ice and freezing rain, and I doubt that the pulley
> would really function well, if at all in the winter.
> But, perhaps ?
>
> Think a large metal ring, with a Dacron rope goint thru (one end to the
> wire end) would be better ?
> Coat Dacron with Silicone Spray ?
>
> Or,... ?
>
> Bob
>
Bob,
Pulley's and jugs of anti-freeze have worked well for me through 5 winters
here in NH.
No apparent problems with "boat pulleys" seizing up. I would worry more
about friction on the
rope!. My 220 foot antenna of #10 copperweld with W7FG ladderline requires 5
gallon jugs of
anti-freeze and is supported with the double braided Dacron in about a 300
foot span.
Regards,
Ed, N5EI

Ed, N5EI

1134. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 14:15:06 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <42p6u1ttmu85ipccjcbffoa5431n0kelmr@4ax.com>
Source record: 64745

On Fri, 3 Feb 2006 07:46:17 -0500, "Robert11" <rgsros@notme.com>
wrote:
[snip]
>But, we get a lot of ice and freezing rain, and I doubt that the pulley
>would really function well, if at all in the winter.
>But, perhaps ?
>
[snip]

I use a marine pulley. It is rated at 700 LBS, its housing is made of stainless steel and the wheel is nylon. I have a 200+ foot span between some very high fir trees. These suckers really whip around when those Pacific winter storms hit. Mine system has been up for over ten years with out any mishaps.

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1135. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 14:21:58 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43e36643_2@newsfeed.slurp.net>
Source record: 64746

"Reg Edwards" wrote:
> The low-angle performance of a half-wave dipole, even when
> radiating broadside towards the receiver, is very poor in
> comparison with a simple vertical.

To the extent that this is true, it is not just a function of the intrinsic radiation patterns of the (horizontally polarised) half-wave dipole and the vertical monopole, but also to the net gain toward the other end of the path including reflections of that intrinsic radiation from the physical environment around the antenna.

The performance of an antenna near the earth can depend as much on its installation conditions as its free space pattern.

RF

1136. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 14:30:12 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drvpdk$8uo$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64747

"Richard Fry" <rfry@adams.net> wrote in message
news:43e3532e_1@newsfeed.slurp.net...
> "Richard Harrison" wrote:
> > The earth`s attenuation of low-angle radiation from a 1/4-wave
vertical
> > antenna has a significant effect on the vertical radiation
pattern. ee
> > Fig. 54-1 on page 465 of B. Whitfield Griffith`s "Radio-Electronic
> > Transmission Fundamentals". This figure shows field intensity
curves
> > versus vertical angle from a 1/4-wave vertical antenna radiating 1
> > kilowatt over earth of average conductivity. Anything below about
> > 5-degrees is gone, eaten by the earth`s losses.
> _________________
>
> This certainly is not true for frequencies below about 2 MHz. If it
was
> true, MW broadcast stations would have no groundwave coverage --
which of
> course is the only useful coverage they _do_ have in the daytime.
>
> A monopole vertical radiator of any length up to 5/8-wave, when used
with a
> ground system of ~120 buried radials each ~1/2-wave long, radiates
its peak
> field very nearly in the horizontal plane regardless of the
conductivity of
> the ground in which the radials are buried. This gain is within a
few
> percent of the theoretical peak gain for these radiators when
working
> against an infinite, perfectly conducting ground plane, as was
demonstrated
> by the field tests of Brown, Lewis & Epstein in 1937. This
principle has
> been accepted and used by the FCC and other regulating agencies, and
has
> been field-proven in thousands of installations going back many
decades.
>
> Once "launched," the groundwave signal is affected by ground
conductivity
> along the propagation path, earth curvature, obstructions etc.
Groundwave

> path loss increases with increasing frequency, and above some
frequency in
> the low HF range, the groundwave is unable to serve a practical
purpose.
> But that doesn't necessarily mean that the transmit antenna did not
generate
> the groundwave in the first place, ie, that it radiated zero field
in the
> horizontal plane and at very low elevation angles.
>
==========

Rich, all what you say is quite true - except that groundwave is
radiated at ALL frequencies from a vertical of 5/8-wave or shorter.

Useful propagation occurs at 30 MHz and below. But loss in the ground
and loss due to obstructions above 1/4-wave in height is high. Solid
ragchews across town and small city are quite possible on the 10m
band.

For predicting groundwave propagation from VLF to HF, download program
GRNDWAV3 from website below.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

1137. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 14:49:36 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <drvqi0$j78$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64748

> For predicting groundwave propagation from VLF to HF, download
program
> GRNDWAV3 from website below.

==========

Sorry, I should have said download program GRNDWAV4 from website
below.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

1138. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 16:05:30 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <bjbcb3-g2o.ln1@p400bob.personal.cox.net>
Source record: 64750

Hi Reg

Interesting stuff

I wonder however if you have any hard data on the merits of using one polarization over another in an electrically noisy environment. For years I have believed (but never seen proof) that on average horizontal is better for this.

Any comments? If it is horiz, why? Is it indeed the high radiation angle missing local noise makers or something else..?

Cheers Bob VK2YQA

Reg Edwards wrote:
> There is much discussion about the relative merits of the simple
> vertical versus horizontal dipole antennas.

1139. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 16:41:28 UTC
From: W8LNA <W8LNA@arrl.net>
Message-ID: <sILEf.13324$qg.4966@news01.roc.ny>
Source record: 64749

Robert11 wrote:
> Hi,
>
> Pretty sure I'll probably be able to come up with something that will more
> or less work, but was wondering if any of you folks have a real clever
> solution for this:
>
> Will be stringing a horiz wire listening only antenna between two trees out
> back.
> Trees have a fair amount of movement, particularly in the winter.
>
> So, I thought I'd fasten one end securely, and then use the pulley
> arrangement, with a hanging weight, like you see in all the pix for this
> sort of thing.
>
> But, we get a lot of ice and freezing rain, and I doubt that the pulley
> would really function well, if at all in the winter.
> But, perhaps ?
>
> Think a large metal ring, with a Dacron rope goint thru (one end to the wire
> end) would be better ?
> Coat Dacron with Silicone Spray ?

In Colorado I had a 150' balanced fed dipole hung between a blue spruce and an oak tree, the spruce end fastened and the oak end with a pulley held up with a garage door spring to the oak, a rope through the pulley to the ground and tied off to a screw eye in the trunk of the tree. I used nylon ropes, allowed the dipole to sag a couple feet and never had a problem with it. The garage door spring was about 4 feet long relaxed and I could stretch it a foot or so just pulling on it, it was stretched maybe two feet with the antenna up. The pulley was handy because the feed line broke off and I was able to lower the feed point to the ground and make repairs. The antenna would bounce around on windy days, stayed up with about an inch coating of snow and ice and got me a QSL card from a Clipperton Island expedition.

W8LNA

1140. Re: 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 17:11:41 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <effcb3-36o.ln1@p400bob.personal.cox.net>
Source record: 64751

Hi Bryan

Am a little confused. Probably from working nights and not getting
enough sleep!

From your diagram you are trying to get a signal between the site that
has the 24dB gridpack and the "Outside building". You have done some
tests from the road and it seems to work.

I'd expect you biggest prohblem is the pine forest. They are excellent
for attenuating microwave signals! My gut feel is that you'll need a
gain antenna at the "outside building" as well as the existing one. This
very much depends on the pine tree density that I dont have any actual
attenuation figures on. I actually modelled a 2.4GHz link to my mother
in laws place about half a mile away through trees and with gridpacks at
each end. I had about 50dB of margin but was still worried about 100-200
yards of pine trees. If nothing else you'll get multipath interference
and may need to play with polarization.

If all else fails try bouncing the signal off the house. You might be
surprised!

Sorry I cant be more helpful. Pine needles and tree trunks I dont have
any figures on!

Cheers Bob

Bryan Martin wrote:
> Well the downside is that I dont think I can pull off the reflector senerio
> or complete line of site going over the tree's. At the end of this
> powerline is someone else's lot so I can't place anything on or around that.
> I only have permission to put the unit in the building located behind
> someone's house. Ideally I would rather not have any external antenna's on
> the building if at all possible to make the intrusion on property as light
> as possible. Thats what brought me to my question. The building is just an
> old cheap yard shed more than anything. It has power and 2 windows on the
> back side facing the back of the lot. I hope to be able to place the
> wireless unit close to the window which should help push the signal. If the
> building was another 25-30 foot more to the right I might would have LOS to
> it but that is also when you cross over onto someone elses land which is not
> an option. As for seeing the signal I am almost completely positive the
> grid antenna would be able to intersect the wireless signal at the end of
> the powerline but I am unsure if that is enough to get the signal back?

1141. Re: 802.11 link

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 18:12:27 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <f2NEf.1971$%84.182@tornado.southeast.rr.com>
Source record: 64752

You are right in that I am attempting to pass the signal from the building to the 24db antenna down the powerline NLOS. Distance wise I have passed the signal even further than I need NLOS but it was a strait shot NLOS not off to the right like I am going to attempt. I will be able to actually try this tomorrow and may post my results.

"Bob Bob" <bob3bob3@cox.net> wrote in message news:effcb3-36o.ln1@p400bob.personal.cox.net...
> Hi Bryan
>
> Am a little confused. Probably from working nights and not getting enough
> sleep!
>
> From your diagram you are trying to get a signal between the site that has
> the 24dB gridpack and the "Outside building". You have done some tests
> from the road and it seems to work.
>
> I'd expect you biggest prohblem is the pine forest. They are excellent for
> attenuating microwave signals! My gut feel is that you'll need a gain
> antenna at the "outside building" as well as the existing one. This very
> much depends on the pine tree density that I dont have any actual
> attenuation figures on. I actually modelled a 2.4GHz link to my mother in
> laws place about half a mile away through trees and with gridpacks at each
> end. I had about 50dB of margin but was still worried about 100-200 yards
> of pine trees. If nothing else you'll get multipath interference and may
> need to play with polarization.
>
> If all else fails try bouncing the signal off the house. You might be
> surprised!
>
> Sorry I cant be more helpful. Pine needles and tree trunks I dont have any
> figures on!
>
> Cheers Bob
>
> Bryan Martin wrote:
>> Well the downside is that I dont think I can pull off the reflector
>> senerio or complete line of site going over the tree's. At the end of
>> this powerline is someone else's lot so I can't place anything on or
>> around that. I only have permission to put the unit in the building
>> located behind someone's house. Ideally I would rather not have any
>> external antenna's on the building if at all possible to make the
>> intrusion on property as light as possible. Thats what brought me to my
>> question. The building is just an old cheap yard shed more than

>> anything. It has power and 2 windows on the back side facing the back of
>> the lot. I hope to be able to place the wireless unit close to the
>> window which should help push the signal. If the building was another
>> 25-30 foot more to the right I might would have LOS to it but that is
>> also when you cross over onto someone elses land which is not an option.
>> As for seeing the signal I am almost completely positive the grid antenna
>> would be able to intersect the wireless signal at the end of the
>> powerline but I am unsure if that is enough to get the signal back?

1142. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 18:41:14 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds084agjf1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64753

> Interesting stuff
>
> I wonder however if you have any hard data on the merits of using
one
> polarization over another in an electrically noisy environment. For
> years I have believed (but never seen proof) that on average
horizontal
> is better for this.
>
> Any comments? If it is horiz, why? Is it indeed the high radiation
angle
> missing local noise makers or something else..?
>
> Cheers Bob VK2YQA
>
> Reg Edwards wrote:
> > There is much discussion about the relative merits of the simple
> > vertical versus horizontal dipole antennas.

==========

Local noise is stronger in terms of milli-volts per meter than distant noise for obvious reasons. It is nearer and man-made.

Local noise is vertically polarised and comes in via the groundwave and at low elevation angles.

Therfore, a vertical antenna which is most sensitive to vertical polarisation and to signals and noise coming from low angles produces greater low-angle signals and low-angle noise in the receiver.

Whereas, distant noise comes in from high angles via the ionosphere and is randomly polarised. It is weaker than local noise. It depends on lattitude, the sun, day or night and season of the year.

Therefore, a horizontal dipole which is most sensitive to signals and noise coming in from the higher angles produces greater high-angle signals and high-angle noise in the receiver.

Now carry on from there. Compare a dipole receiving a low-angle signal with high-angle noise coming in from all directions, with a vertical antenna receiving a high-angle signal with low-angle noise coming in from all directions.

Reg.

1143. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 19:03:22 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns975F70727C8F9doldridgsprintca@64.59.135.159>
Source record: 64754

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in news:drqijerqq1
@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com:

> Opinions of the many individuals depend on geographic lattitude, World
> population densities, what bands happen to be favourites, G5RV's and
> how much money there is in the bank. Let's try to remove these
> distracting factors.
>
> I'll put it in somewhat different "simplistic" terms.
>
> Everything else being equal, the deciding factors are geometry and
> trigonometry. The performance of a dipole is better at elevation
> angles greater than about 45 degrees and the performance of a vertical
> is better at lower angles. That's because the vertical and horizontal
> antenna types are oriented at 90 degrees to each other. At elevation
> angles around 45 degrees performance is about the same for both types.

No, at 45 degrees the PATTERN is about the same (assuming that the
horizontal antenna is at least .25 wavelength high). But the actual GAIN
over an isotropic source is equivalent down at around 25 degrees. That's
because the vertical is normally a monopole, the other half of which is
reflected in the ground, whereas the dipole is a dipole and its ground
reflection is therefore another dipole stacked with it. Ground losses
for the dipole occur at a lower incident angle and further from the
antenna and are thus lower.

Of course, you can have the best of both worlds by using a vertical
dipole, in which case your take-off angle will really be quite low.

The main reason why verticals tend to outperform dipoles on low-band DX
paths is that the dipoles and other horizontally polarized wires are
rarely very high. A lot of them are only about an eighth of a wavelength
up or even less. This increases ground losses at all angles and reduces
the efficiency of the antenna. And if you can get the current loop to
climb up the antenna (by top loading it), a vertical will compete very
strongly below about 30 degrees.

--
Dave Oldridge+
ICQ 1800667

1144. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 19:17:28 UTC
From: richardharrison@webtv.net
Message-ID: <11960-43E3AC48-35@storefull-3253.bay.webtv.net>
Source record: 64755

Reg wrote:
"If you can`t be heard at 1000 miles or more using a dipole, you are more likely to be heard using a vertical regardless of what the other fellow is using to receive."

That must not always be the case. Otherwise all the shortwave broadcast stations I`ve worked in, and seen for that matter, would not use horizontal antennas. They have no way of knowing what their audience will use for antennas, and it does not make much difference as following ionospheric reflection, all wave polarizations are available and may be received.

At the equator, a time zone is about 1000 miles wide. at the poles (a bad place for shortwave propagation) the width of a time zone is insignificant. All the stations I refer to are in the temperate zone and their targets are likely 1000 miles or so away, though some targets of some stations are only a few hundred miles away.

Antennas at these shortwave broadcast stations are a product of studying successful antennas and carefully designing new antennas anf testing their performance in and around their intended targets. They are proved to be effective.

Why would a vrtical antenna be better?

From Arnold B. Bailey`s giant antenna catalog in his "TV and Other Receiving Antennas", the free-space gain is the same for a ground plane as it is for a center-fed 1/2-wave dipole. An antenna`s proximity to the earth may change the balance between horizontal and vertical antennas.

Terman writes on page 886 of his 1955 edition:
"Consider an antenna that is far enough from ground so that the total power radiated by a given set of antenna currents is independent of the presence of the ground. Then a ground reflection that reinforces the main lobe will double the field strength of the main lobe, and so will increase directive gain of the antenna system by a factor of 4. This condition corresponds to an antenna height great enough to make the mutual impedance between the antenna and its image small (see page 894).With horizontally polarized systems this will be the case if the center of the antenna is at least one wavelength above ground; with vertically polarized systems it is true even at lower heights.

However. when the antenna is sufficiently close to the ground the effect of the ground reflection is to cause the directive gain to differ from 4. Thus , for a vertical doublet close to the ground, the directive gain is twice the free-space value, since the presence of the ground does not

alter the directional pattern and there is no energy radiated in the direction of the hemisphere occupied by the ground. In contrast, the directive gain of a horizontal antenna very close to the ground can be more than 4 as compared with the same antenna in free space, as discussed below in connection with Fig. 23-36."

Seems horizontal antenna users are not fools after all.

Best wishes, Richard Harrison, KB5WZI

1145. Another ATAS-120 -- FT-857D question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 21:27:59 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <oPKdnWIIKaNUV37eRVn-og@comcast.com>
Source record: 64756

My FT-857 display is showing the word MTUNE. No mention of this in the manual. I went through the setup routine for the ATAS-120 and the antenna seems to be working fine -- it tunes when I change bands and I am making HF contacts on it.

Anyone know what this means?

Thanks.

1146. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 22:14:13 UTC
From: Bill Cherepy <wb4wtn@mindspring.com>
Message-ID: <48l7u11p80ubj9s25qu455gpfc79dkuuum@4ax.com>
Source record: 64757

On Fri, 3 Feb 2006 07:46:17 -0500, "Robert11" <rgsros@notme.com>
wrote:

>
>So, I thought I'd fasten one end securely, and then use the pulley
>arrangement, with a hanging weight, like you see in all the pix for this
>sort of thing.
>

Here in Georgia I use a pulley with a 15 lb small boat anchor
I picked up at Bass Pro Shop. More expensive, but not as messy as
plastic jugs and liquid.

Bill Cherepy
Grayson, GA

1147. Re: Another ATAS-120 -- FT-857D question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 22:21:34 UTC
From: "void * clvrmnky()" <clvrmnky-uunet@coldmail.com.invalid>
Message-ID: <OHQEf.10877$43.6551@nnrp.ca.mci.com!nnrp1.uunet.ca>
Source record: 64758

On 03/02/2006 4:27 PM, Joe S. wrote:
> My FT-857 display is showing the word MTUNE. No mention of this in the
> manual. I went through the setup routine for the ATAS-120 and the antenna
> seems to be working fine -- it tunes when I change bands and I am making HF
> contacts on it.
>
> Anyone know what this means?

"Memory Tune"

Google is your friend in this case. Get a searchable copy of the
Operating Manual and look for "mtune". Check the "Memory Operation"
section of the manual.

If you are stuck, I can send you the PDF I have.

1148. Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-03 23:41:51 UTC
From: "Richard W. Solomon, W1KSZ" <w1ksz@earthlink.net>
Message-ID: <veq7u1p4vr6vjbo5is93sfba87hn90u6l0@4ax.com>
Source record: 64759

I know you can get UHF type feedthrus in various lengths,
but do they exist in "N" Connector style.
What do folks use to run coax thru walls ?

Tnx, Dick, W1KSZ

1149. Re: Another ATAS-120 -- FT-857D question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 00:19:27 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <_PednbeyWZhkb37enZ2dnUVZ_tydnZ2d@comcast.com>
Source record: 64760

Thanks -- I went to the Yaesu site and found a .pdf manual for the 857 and found MTUNE. Strange -- I can't figure out how I got into that mode. Well, anyway, I went back out to the truck a few minutes ago, screwed around with it and MTUNE has disappeared from the display and the rig and antenna are working normally.

Life was so much more simple with a pi-network and dozen or so knobs to turn while watching the meters :-)

"void * clvrmnky()" <clvrmnky-uunet@coldmail.com.invalid> wrote in message news:OHQEf.10877$43.6551@nnrp.ca.mci.com!nnrp1.uunet.ca...
> On 03/02/2006 4:27 PM, Joe S. wrote:
>> My FT-857 display is showing the word MTUNE. No mention of this in the
>> manual. I went through the setup routine for the ATAS-120 and the
>> antenna seems to be working fine -- it tunes when I change bands and I am
>> making HF contacts on it.
>>
>> Anyone know what this means?
>
> "Memory Tune"
>
> Google is your friend in this case. Get a searchable copy of the
> Operating Manual and look for "mtune". Check the "Memory Operation"
> section of the manual.
>
> If you are stuck, I can send you the PDF I have.

1150. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 01:34:12 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <AuadnZKFTMwJmXnenZ2dnUVZ_tadnZ2d@adelphia.com>
Source record: 64761

nm5k@wt.net wrote:
>>This is an early stage of the experiment, but
>>I believe that there is a lot to say with the lower noise on the
>>horizontal antenna station
>
>
> Probably has a lot to do with the particular sites
> though. It's quite possible to be near a noise source
> that is mainly vertical polarized. In a case like that, it's
> possible it could be a problem.

Agreed.

> But I never saw the difference
> in noise levels you are seeing. At the worst, I might see
> appx 2 S units, but sometimes it might only be one, or
> even other times , nearly no difference at all. Most of
> the noise I would see at this location is power line noise.

Tonight it is about 2 S units different. Also remember that I don't
have the two S-meters calibrated against each other

> It seems to effect both horizontal and vertical nearly equally. :(
> Probably cuz much is radiated by horizontal power lines.
> I've never tested it, but I think if you are in a noiseless location,
> the difference would be fairly small as far as meter readings
> just measuring the average atmospheric noise.

I suspect so also. Maybe some day I'll test that out. The Butternut can
be removed and remounted pretty easily. There is a low noise area where
we have FD. Maybe I'll haul the vertical out there some weekend.

> The reason I
> say this is because sometimes I would see little difference in
> noise between the two. But other times I might see more.
> But you could see small differences just from the increase in
> strength of dx signals. IE: if you had T-storms 1500 miles away,
> it's quite likely the vertical will receive them stronger than the
> horizontal due to the normal operation of the antennas.
> Anyway, I don't totally consider what you see as the norm. "4 s units"
> You probably have a local vertical noise source nearby. If it's power
> line, etc, you might be able to track it down and get it fixed. :)
> I'd be curious to see if you see the same 4 S unit noise difference
> over a period of time. Like I say, mine would vary. But noise
> never was much of a concern on mine. Never gave it much thought
> at all. Kinda weird too being I'm in a big city, in a residential area.

>
> Being mine was elevated at 36 ft at the base, I also had a pretty
> good line of sight to any potential noise sources.
> The tip of the radiator was at about 68 ft. As far as the VE being
> better on the wire, that's probably fairly normal, being he wasn't dx.
>
> Also, as a final note, while your butternut with 20 radials is ok, it
> still
> isn't quite up to the performance I saw with mine at 36 ft, using a
> full size antenna. So I saw a larger signal increase on the dx than you
>
> I bet. Mine was appx equal to a full length monopole with 60 radials,
> if ground mounted. I'd have to look, but my ground may be a bit better
> too. I'm right on the edge of being in a "30" zone. Of course, raising
> efficiency raises s/n equally, but I noticed that I never saw the same
> performance I had with the ground plane, when I ran the same full size
> vertical on the ground with 32 radials. That antenna was about equal
> to my dipoles at 1500 miles. Maybe a small bit better, but not any
> 2 S units worth like the GP was. So regardless of some saying the
> number of radials is not too important, it must be, if you want the
> best
> performance. Sure made a difference here...

I'll be putting out more as time allows. The old back just doesn't
allow me to run more than about 5 at a time - too much Ice Hockey taking
it's toll! 8^)

> Either that, or elevating it above the surroundings makes the
> difference.
> Myself, I think it's about 75% the first, and 25% the second...
> Elevating
> the antenna for sure increased my local ground wave. I could work 50
> miles away ground wave easy. I'd have cases in the daytime where I'd
> lose locals due to the band stretching out. But I could still nail them
> at
> S 9 using the GP, where the dipole would be hard to read backscatter.
> Of course, if the band was open short, I'd be 10-20-30 over 9 on the
> dipole
> to the same location.

One thing that I am seeing is that different signals originating from
different locations are coming in at different strengths on the two
radios with the different antennas. This is fascinating. I've been
listening tonight to a VE, a Pennsylvania ham, and another from South
America.

I suppose that a lot of hams may be used to this, but I find it very
cool - I suppose that the different signals coming in at different
angles are "caught" by the different antennas differently. I gotta get
these two meters calibrated against each other.

> Anyway, I guess you gotta use what works, but I don't think it's
> totally
> normal to see a huge difference in noise between vertical and
> horizontal
> unless something local is the culprit.

Could be a local problem - that one is harder for me to troubleshoot. I would say that the noise is probably not power line source. It is a sort of crashing noise. Almost like lightning noise, but occurring more often, and less powerful. Could be southern hemisphere lightning storms?

- 73 de Mike KB3EIA -

1151. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 02:57:52 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <4q58u1pl6ro7oh9f1u9r0l4r0jdmg6nvem@4ax.com>
Source record: 64762

On Thu, 02 Feb 2006 21:57:47 -0500, Mike Coslo
<mremovethiscoslo@adelphia.net> wrote:

> But here is the interesting thing. On the horizontal antenna, the
>listening is a whole heckava lot more pleasant. Another item of interest

Mike, you will be aware that a lot of commercial HF amateur
transceivers have two HF antenna sockets which can be selected from
the front panel. I have always wondered why they do not support a mode
of tx on Ant-1, rx on Ant-2 to conveniently support the very
configuration you are using.

Owen
--

1152. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 04:24:36 UTC
From: mcalhoun@ksu.edu
Message-ID: <ds1aa4$nqg@unix1.cc.ksu.edu>
Source record: 64763

>... was wondering if any of you folks have a real clever solution for this:
>... [snipping pulley and weight vs. spring discussion...]

Instead of pulleys, I use a fairly-large (they come in several sizes)
screw-in glass insulators like you might use when running a power line;
they are easy to install, plenty strong enough, there's no danger of
the rope slipping off the pulley wheel, and they are smooth enough that
I've never had a rope break because of chafing.

And instead of weights, I use one/two/three/... (as many as I think the
length and weight of wire needs) screen-door-type springs; they're cheap
and seem to last forever. They can be overstretched, but they're cheap....

If you do use a weight, be sure to tie it up (loosely) in such a way that
if the antenna breaks, the weight won't clobber someone who just happens
to be standing below it!
--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

1153. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 04:59:55 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <d1d8u11k8tcc07kjo4p592e6n8qug43ojt@4ax.com>
Source record: 64764

On Fri, 3 Feb 2006 07:46:17 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hi,
>
>Pretty sure I'll probably be able to come up with something that will more
>or less work, but was wondering if any of you folks have a real clever
>solution for this:
>
>Will be stringing a horiz wire listening only antenna between two trees out
>back.
>Trees have a fair amount of movement, particularly in the winter.
>
>So, I thought I'd fasten one end securely, and then use the pulley
>arrangement, with a hanging weight, like you see in all the pix for this
>sort of thing.
>
>But, we get a lot of ice and freezing rain, and I doubt that the pulley
>would really function well, if at all in the winter.
>But, perhaps ?
>
>Think a large metal ring, with a Dacron rope goint thru (one end to the wire
>end) would be better ?
>Coat Dacron with Silicone Spray ?
>
>Or,... ?
>
>Bob
>

For a 130 foot dipole stretched between 3 trees, I use inexpensive
screen door springs from the hardware store at each end. The springs
get rusty, but still work and my antenna has yet to break.

bob
k5qwg

1154. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 11:26:46 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11u93rpp6sqo61e@corp.supernews.com>
Source record: 64765

Mike Coslo wrote:
> . . .
> I gotta get
> these two meters calibrated against each other.
> . . .

If you don't have a signal generator with variable output, connect the two feedlines through a DPDT switch so it swaps the antenna to each receiver when you switch it back and forth. Write down the meter reading on each receiver for the same signal from the same antenna. It probably won't take long to accumulate a decent cross reference.

Of course, you still won't have a clue as to how many dB each meter unit represents. That'll take an investment of a few dollars and an evening to make a step attenuator.

Roy Lewallen, W7EL

1155. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 12:47:23 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <DqudnefiutHEP3neRVn-iA@comcast.com>
Source record: 64766

Richard W. Solomon, W1KSZ wrote:

> I know you can get UHF type feedthrus in various lengths,
> but do they exist in "N" Connector style.
> What do folks use to run coax thru walls ?
>
> Tnx, Dick, W1KSZ

Dick, I use a drill followed by a length of coax.

!-)

1156. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 14:29:23 UTC
From: Brian Kelly <kelly@dvol.com>
Message-ID: <1139063363.481051.277830@g14g2000cwa.googlegroups.com>
Source record: 64767

Amos Keag wrote:
> Richard W. Solomon, W1KSZ wrote:
>
> > I know you can get UHF type feedthrus in various lengths,
> > but do they exist in "N" Connector style.

I've never seen any listed in the catalogs of the usual ham supply houses.

> > What do folks use to run coax thru walls ?
> >
> > Tnx, Dick, W1KSZ
>
> Dick, I use a drill followed by a length of coax.

Ya beat me to it. I agree. I'm on my way to putting up some HF - UHF antennas and that's exactly the approach I'll use. Take a couple feet of coax and install a connector on one end. Then drill a hole thru the wall which is just slightly bigger in diameter than the coax. Fish the coax through the hole with the already-installed connector on the outside of the wall then install the inside connector on the inside end of the jumper when I'm inside and out of the weather.

In my case I'll be using 8X coax for my HF antennas and a 9/32"- 5/16" inch drill which makes a much smaller hole to drill and patch and "make disappear" years from now when I go SK or move. Versus the 5/8" hole required to install a UHF feedthru. There are also some cost saving advantages to not using feedthrus. I drill the holes slightly inclined down toward the outside to keep water from migrating along the coax toward the inside.

>
> !-)

w3rv

1157. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 16:56:00 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <KbGdnXAbAJM9QXneRVn-qQ@adelphia.com>
Source record: 64768

Owen Duffy wrote:
> On Thu, 02 Feb 2006 21:57:47 -0500, Mike Coslo
> <mremovethiscoslo@adelphia.net> wrote:
>
>
>
>> But here is the interesting thing. On the horizontal antenna, the
>>listening is a whole heckava lot more pleasant. Another item of interest
>
>
> Mike, you will be aware that a lot of commercial HF amateur
> transceivers have two HF antenna sockets which can be selected from
> the front panel. I have always wondered why they do not support a mode
> of tx on Ant-1, rx on Ant-2 to conveniently support the very
> configuration you are using.

I'm inclined to agree. I guess I'll have to build a switching box.
Shades of olde time separate transmit/receive rigs!

- 73 de Mike KB3EIA -

1158. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 17:05:29 UTC
From: Charlie <charlie@usc.edu>
Message-ID: <11u9no8gjpe5v76@news.supernews.com>
Source record: 64769

Amos that is way too simple and effective!! But I can top that..I use a partially opened widow, snipped window screen, piece of wood and lots of adhesive-backed 1" wide weather stripping to seal the whole mess up!! Works FB too!!!

--

Charlie-AD5TH
www.deepsouthnet.net

"Amos Keag" <A.K01@comcast.net> wrote in message
news:DqudnefiutHEP3neRVn-iA@comcast.com...
> Richard W. Solomon, W1KSZ wrote:
>
>> I know you can get UHF type feedthrus in various lengths,
>> but do they exist in "N" Connector style.
>> What do folks use to run coax thru walls ?
>>
>> Tnx, Dick, W1KSZ
>
> Dick, I use a drill followed by a length of coax.
>
> !-)
>

1159. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 20:32:02 UTC
From: Mr Fed UP <mrfedup@bellsouth.net>
Message-ID: <ZbbFf.19975$eY5.7677@bignews7.bellsouth.net>
Source record: 64774

What?!!! all these good iders and no one included good ol' duct tape yet.
Just restarting a new shack myself... empty room... not much jingle so
I'll just stuff mine out the wood slab in the winder too. Good luck Y'all
Oh, and don't forget the rubber sillycone sealer. lol

73 K4TWO Gary

"Charlie" <charlie@usc.edu> wrote in message
news:11u9no8gjpe5v76@news.supernews.com...
> Amos that is way too simple and effective!! But I can top that..I use a
> partially opened widow, snipped window screen, piece of wood and lots of
> adhesive-backed 1" wide weather stripping to seal the whole mess up!!
> Works FB too!!!
>
> --
>
> Charlie-AD5TH
> www.deepsouthnet.net
>
>
> "Amos Keag" <A.K01@comcast.net> wrote in message
> news:DqudnefiutHEP3neRVn-iA@comcast.com...
>> Richard W. Solomon, W1KSZ wrote:
>>
>>> I know you can get UHF type feedthrus in various lengths,
>>> but do they exist in "N" Connector style.
>>> What do folks use to run coax thru walls ?
>>>
>>> Tnx, Dick, W1KSZ
>>
>> Dick, I use a drill followed by a length of coax.
>>
>> !-)
>>
>
>

1160. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 21:26:52 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <176au1dd5a0s6nbri5728ml0ql1j1e1l7j@4ax.com>
Source record: 64770

On Sat, 04 Feb 2006 03:26:46 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>represents. That'll take an investment of a few dollars and an evening
>to make a step attenuator.

A greatly overlooked item of test equipment.

I recall advising a ham to buy a HP355 step attenuator so that he could quantify the level of interference from nearby power leaks and build a prime facie case for non compliance with emission standards.

Although he had just winged at length about his $20,000 plus investment in a tower and VHF/UHF antennas, more on radios, etc... he baulked at spending a $100 on something as unexciting as a step attenuator. This was an opportunity to learn a little more about predicting path loss than a $100 burden.

As part of my FSM project for measuring BPL emissions, I went searching the net for kits for RF step attenuators, and all that I found were kits that had gone obsolete, no longer available. Today it should be a piece of cake to do a low cost kit with miniature switches, precision surface mount resistors etc... but we as a community are apparently not sufficiently interested in quantifying things these days.

Owen
--

1161. More ATAS-120 problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 22:10:50 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <5JGdneVCIKrJu3jenZ2dnUVZ_sCdnZ2d@comcast.com>
Source record: 64771

I installed a FT-857D and ATAS-120 on my truck. Everything worked fine after the installation but now something has happened.

The rig does not recognize the antenna. I have gone through the antenna initialization steps several times. I even reset the rig to default positions and set up the antenna again.

Normally, when the ATAS is connected and tuned, the display will show ATAS. If the antenna is not tuned, the display shows lower case atas until it is tuned then it switches to ATAS.

Normally when you change frequenct and hit the TUNE button, the display says WAIT and the antenna tunes itself. Now, when I hit the TUNE button, the rig beeps once as though it is starting to tune the rig then it immediatly beeps twice -- neither ATAS nor WAIT appears in the display.

I do not get an ATAS or atas on the display. When I press the TUNE button, instead of tuning the antenna, the rig beeps, then beeps twice, and that's it.

I have double-checked the coax and there are no problems with it. Checked and double-checked all wiring and installations.

Anyone have any suggestions?

Thanks.

1162. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 23:20:39 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uadmer968m2a2@corp.supernews.com>
Source record: 64772

Owen Duffy wrote:
> . . .
> As part of my FSM project for measuring BPL emissions, I went
> searching the net for kits for RF step attenuators, and all that I
> found were kits that had gone obsolete, no longer available. Today it
> should be a piece of cake to do a low cost kit with miniature
> switches, precision surface mount resistors etc... but we as a
> community are apparently not sufficiently interested in quantifying
> things these days.

A step attenuator which is completely adequate for HF and can easily resolve 1 dB can be made from a few cheap slide switches, some PC board material, and a handful of ordinary 5% quarter watt resistors. Detailed instructions can be found in numerous sources, including the Web -- a Google search brought a large number of hits, the first of which was http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm afraid that this level of homebrewing is beyond the interest if not the ability of the majority of today's amateurs.

Roy Lewallen, W7EL

1163. Re: SteppIR antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-04 23:47:26 UTC
From: Kenneth Grimm <kgrimm@adelphia.net>
Message-ID: <a6fau191nd57eoeim9sk7nagleu97kqdv3@4ax.com>
Source record: 64773

On Tue, 30 Sep 2003 23:17:30 -0500, Cecil Moore
<Cecil.A.Moore@ieee.ONEDOT.org> wrote:

> Uncle Peter wrote:
>> Nothing is forever.
>
>Not even time. :-)

This has yet to be conclusively demonstrated....

Ken K4XL
k4xl@arrl.net

*** BoatAnchor Manual Archive ***
On the web at http://bama.sbc.edu and http://bama.edebris.com
FTP site info: bama.sbc.edu login: anonymous p/w: youremailadr

1164. FA: HV ceramic insulators for wire antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 00:12:33 UTC
From: Rightrik <gaggiorNOSPAM@tin.itNOSPAM>
Message-ID: <ds3ftftuf1@nnrp.ngi.it>
Source record: 64775

http://cgi.ebay.it/ws/eBayISAPI.dll?ViewItem&item=5862892253&rd=1&sspagename=STRK%3AMESE%3AIT&rd=1

1165. Hi Q TAD Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 00:37:40 UTC
From: me <tuskyone@yahoo.com.au>
Message-ID: <ds3hd3$p8h$1@news-02.connect.com.au>
Source record: 64626

Hi I need to hear any comments in rgds the performance of the HI Q TAD 4/160
(Tune a dipole)
quality, performance, anything really, ease of tuning, etc etc

rgds

1166. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 00:50:42 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <3b7e$43e54c01$97d56b99$9280@ALLTEL.NET>
Source record: 64627

I kinda wrap it round the stump holdin up the house, and bring er up thru a
crack in the floor.

lest ways thats how we do it here abouts...

"Mr Fed UP" <mrfedup@bellsouth.net> wrote in message
news:ZbbFf.19975$eY5.7677@bignews7.bellsouth.net...
> What?!!! all these good iders and no one included good ol' duct tape yet.
> Just restarting a new shack myself... empty room... not much jingle so
> I'll just stuff mine out the wood slab in the winder too. Good luck
Y'all
> Oh, and don't forget the rubber sillycone sealer. lol
>
> 73 K4TWO Gary

1167. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 03:48:15 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds3shv$295$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64628

"Owen Duffy" wrote

> but we as a community are apparently not sufficiently interested >
in quantifying things these days.
==========

"When you can measure what you are speaking about and express it in
numbers you know something about it. But when you cannot measure it,
when you cannot express it in numbers, your knowledge is of a meagre
and unsatisfactory kind. It may be the beginning of knowledge but you
have scarcely in your thoughts advanced to the state of science."

: William Thomson, Lord Kelvin, 1824-1907.
==========

Arithmetic is not taught in Western schools and universities any more.
Even teachers are innumerate!

Reg.

1168. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 04:09:16 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <dcagb3-9jo.ln1@p400bob.personal.cox.net>
Source record: 64629

Tnxs for that Reg

What is the generally accepted "number" in either S points or dB of employing horizontal instead of vertical for noise reasons? Obviously it would vary greatly but any idea you have would be helpful. I would also like to get an idea how "critical" it is to make sure ones antenna truly is horizontal (eg not an inverted V or quad loop) if noise is the greatest concern.

One would assume you also get a similar affect of "less horizontal noise" from the actual noise source for the same reason. eg power lines radiate well upwards but not so well in groundwave.

Cheers Bob W5/VK2YQA

Reg Edwards wrote:
>
> Local noise is stronger in terms of milli-volts per meter than distant
> noise for obvious reasons. It is nearer and man-made.

1169. 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 05:20:32 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <5JydnZ5Siru-FnjenZ2dnUVZ_sednZ2d@comcast.com>
Source record: 64630

All,

I am trying to run 4nec2 under linux using wine. It loads and runs fine until a bat file is engaged. The bat files are not supported under linux. Is there a way to translate bat files to linux?

Thanks - Dan

1170. YO!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 08:08:49 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <11ubckkq31jh13f@corp.supernews.com>
Source record: 64631

Is that 5 dollars or is it 5 thousand dollars that is the starting bid?

KF5DE

1171. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 08:15:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds4c6e$4lk$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64632

"Bob Bob" wrote -
> Tnxs for that Reg
>
> What is the generally accepted "number" in either S points or dB of
> employing horizontal instead of vertical for noise reasons?

==

Bob,

First of all we must entirely disregard the opinions of individuals who may be located in high or low noise districts, areas or regions. I myself live in an industrial, densely populated, area near to a factory with a dozen electrical arc welding machines. Others live out in the wilderness, isolated from modern, electrical noise generating civilisation.

There exist statistics of AVERAGE field strength noise levels experienced in cities, small towns and in the open countryside. I have forgotten where to find such statistics but Google may help.

The statistics depend very much on frequency. They vary greatly between ELF and HF. Noise levels decrease by crudely 10 dB or 20 dB per octave or decade increase in frequency.

Furthermore, at ELF and VLF, noise propagates to far greater distances than at HF. There are always continuous world-wide electrical storms somewhere on the Earth's surface.

At 10 KHz noise levels may be several hundred milli-volts per meter. At 7 MHz they may be microvolts per meter. At 30 MHz they are of the order of the internal receiver noise.

The noise level indicated by your S-meter is a function of the size of the antenna relative to wavelength and antenna efficiency. It can be crudely calibrated in terms of micro-volts per metre using a little arithmetic. Learn how to estimate.

In my own experience (which as I say should be disregarded) the difference in noise level between a horizontal dipole and a vertical is about one or two S-points on the 160 metre band. (Or a difference of 6 or 12 dB.)

On the other hand, distant stations come in stronger using a 150-feet, vertical (inverted-L) than they do on a dipole. Not that I have ever used the two types of antenna simultaneously. It's just my opinion. So I prefer the inverted-L. In general, the signal to noise ratio is

better and there is less fading. One hop instead of two, via the
F2-layer, at night, using a dipole?

Reg, G4FGQ

1172. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 09:48:14 UTC
From: Scott <Jones@smith.net>
Message-ID: <chibu1phogi5k91pssfkdo1pd5ai5oh41n@4ax.com>
Source record: 64633

I drilled the wall and put in a section of PVC. Ran all the coax and
then filled the PVC with foam in insulation.

Scott
N2WMD

On Sat, 04 Feb 2006 07:47:23 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>Richard W. Solomon, W1KSZ wrote:
>
>> I know you can get UHF type feedthrus in various lengths,
>> but do they exist in "N" Connector style.
>> What do folks use to run coax thru walls ?
>>
>> Tnx, Dick, W1KSZ
>
>Dick, I use a drill followed by a length of coax.
>
>!-)

1173. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 09:58:06 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <+QA44HKuwc5DFAI+@ifwtech.co.uk>
Source record: 64634

Reg Edwards wrote:
>
>There exist statistics of AVERAGE field strength noise levels
>experienced in cities, small towns and in the open countryside. I have
>forgotten where to find such statistics but Google may help.
>
>The statistics depend very much on frequency. They vary greatly between
>ELF and HF. Noise levels decrease by crudely 10 dB or 20 dB per octave
>or decade increase in frequency.
>

ITU Recommendation ITU-R P.372-8, 'Radio Noise'. This document replaces
and updates the old CCIR Report 322, which was the source for most of
the information on radio noise in the amateur handbooks.

The paper is available as a download from ITU, but they want 36 Swiss
Francs for it (about $28):
http://www.itu.int/rec/R-REC-P.372-8-200304-I/en

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1174. antenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 11:45:55 UTC
From: byrnecut <steve531@bigpond.com.au>
Message-ID: <1139139955.179758.15780@g43g2000cwa.googlegroups.com>
Source record: 64635

I have a two meter aerial with s/no f113 and wl1190 a 4 tap with
2020,5010,5360,6625 can any one tell me what i have, i have searhed all
over the net found very little about it
steve
steve531@bigpond.com.au

1175. Re: antenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 13:06:33 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <JeWdnbY-l83KZXjeRVn-ow@comcast.com>
Source record: 64636

byrnecut wrote:
> I have a two meter aerial with s/no f113 and wl1190 a 4 tap with
> 2020,5010,5360,6625 can any one tell me what i have, i have searhed all
> over the net found very little about it
> steve
> steve531@bigpond.com.au
>

Quick reply and first thoughts: Is it possibly a marine/boat antenna
with the four channels you listed??

1176. Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 14:02:04 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <k6GdnXJ347bbmHveRVn-jw@comcast.com>
Source record: 64637

How do I apply anti-oxidant grease to the junction of two metals? Do I put a dab of grease on each mating surface then clamp the metals together, or, clamp the metals together and smear grease on the outside?

I have a Yaesu FT-857D and an ATAS-120 installed in my truck -- I have had a problem with the ATAS-120 -- my FT-857D would not recognize the antenna. After checking every possible problem, I made a discovery.

Using my ohmmeter, I found there was continuity between the antenna mount and the body and frame of the truck, but, there was no continuity between the antenna connector and the antenna mount. The connecter is a VHF Type M mount; the threaded portion of the connector passes through a hole in the antenna mount and is tightened to the mount with a big nut. There was no connection between the connector and the antenna mount, thus, there was no connection between the outer shell of the antenna connector and the truck frame and body.

I removed the big nut that holds the antenna connector and used emery paper to sand the surface of the nut that contacts the mount, and, I sanded the part of the mount that contacts the nut. When I re-installed the antenna connector, the antenna works perfectly. The problem was a bad ground between the antenna connector and the antenna mount because of oxidation on the two mating surfaces.

I have found a source of anti-oxidant grease that's used on electrical connections and I will put this stuff on the connector-mount junction to prevent further oxidation. Here's the question: Do I loosen the nut and put grease between the nut and the antenna mount -- similar to putting thermal grease between a heat sink and the surface of a transistor -- or, do I tighten the nut and smear grease on the outside, not on the mating surfaces? I suspect I should put the grease on the mating surfaces between the nut and the mount -- loosen the nut, smear on grease, tighten the nut.

Thanks.

1177. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 14:38:35 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <j83cu1pmv8566s5vr7ivgrg0es02geok8m@4ax.com>
Source record: 64638

On Fri, 03 Feb 2006 23:41:51 GMT, "Richard W. Solomon, W1KSZ"
<w1ksz@earthlink.net> wrote:

>I know you can get UHF type feedthrus in various lengths,
>but do they exist in "N" Connector style.
>What do folks use to run coax thru walls ?
>
>Tnx, Dick, W1KSZ

www.thewireman.com has bulkhead double-female feedthroughs, some for
regular UHF connectors, and, yes, some for N connectors. You could
call them to get the various lengths they have in stock.

bob
k5qwg

1178. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 16:04:32 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <h9khb3-epp.ln1@p400bob.personal.cox.net>
Source record: 64639

Hi Dan

Yes I have tried and failed so far encountering a series of problems centered around the bat file. Its been a while though so pls take the following with memory fade in mind!

- The actual necd2.exe file baulks under wine with some kind of malloc problem. I have however succesfully run it under DOSEMU, the DOS emulator. The original problem I had under wine was also wine version specific but I cant remember the details.

- The BAT file supplied by Arie has some characters/syntax that are illegal under wine/DOSEMU. From memory these were tabs somewhere. Replacing them with spaces fixed things. I dont know if Arie addressed this in later versions or not.

- I had the system running at one stage by using the GUI and getting an error doing the calculation. I then ran it manually under DOSEMU and loaded the output file back into the GUI. Clunky but usable. My next effort was going to be to modify the bat file as supplied with a pause statement (and no calc) that gave me time to launch my own script under DOSEMU. I was also looking into some way to launch a Linux script from a bat file but never delved into that too far.

Hope this helps.. If I get excited over fixing this I may do some more experimentation

Cheers Bob W5/VK2YQA

dansawyeror wrote:
>
>
> All,
>
> I am trying to run 4nec2 under linux using wine. It loads and runs fine
> until a bat file is engaged. The bat files are not supported under
> linux. Is there a way to translate bat files to linux?
>
> Thanks - Dan

1179. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 17:31:11 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <GaKdnbJSoIPeqHveRVn-hQ@adelphia.com>
Source record: 64640

Joe S. wrote:
(snip)
> I have found a source of anti-oxidant grease that's used on electrical
> connections and I will put this stuff on the connector-mount junction to
> prevent further oxidation. Here's the question: Do I loosen the nut and
> put grease between the nut and the antenna mount -- similar to putting
> thermal grease between a heat sink and the surface of a transistor -- or, do
> I tighten the nut and smear grease on the outside, not on the mating
> surfaces? I suspect I should put the grease on the mating surfaces between
> the nut and the mount -- loosen the nut, smear on grease, tighten the nut.

The anytioxidant has to be in intimate contact with the metal surfaces
before they are clamped together. Here is a site that tells how to
use one version, Penetrox-A. The details are about 1/4 of the way down:
http://www.inspect-ny.com/aluminum/alreduce.htm#1A

1180. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 18:06:26 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <ZdmdnY4avYoRo3veRVn-vA@comcast.com>
Source record: 64641

"John Popelish" <jpopelish@rica.net> wrote in message
news:GaKdnbJSoIPeqHveRVn-hQ@adelphia.com...
> Joe S. wrote:
> (snip)
>> I have found a source of anti-oxidant grease that's used on electrical
>> connections and I will put this stuff on the connector-mount junction to
>> prevent further oxidation. Here's the question: Do I loosen the nut and
>> put grease between the nut and the antenna mount -- similar to putting
>> thermal grease between a heat sink and the surface of a transistor -- or,
>> do I tighten the nut and smear grease on the outside, not on the mating
>> surfaces? I suspect I should put the grease on the mating surfaces
>> between the nut and the mount -- loosen the nut, smear on grease, tighten
>> the nut.
>
> The anytioxidant has to be in intimate contact with the metal surfaces
> before they are clamped together. Here is a site that tells how to use
> one version, Penetrox-A. The details are about 1/4 of the way down:
> http://www.inspect-ny.com/aluminum/alreduce.htm#1A

John:

THANK YOU!!! Exactly what I needed -- I don't know how you found that -- I spent an hour searching with Google for various combinations of anti-oxidant, antioxidant, applying, application, etc., etc.

I'll pick up a tube/can/jug/whatever of Penetrox tomorrow at my local electrical supply house, disassemble both antenna mounts and connectors, "abrade" them thoroughly, and slap the Penetrox onto every metal-to-metal junction.

Thanks again.

73,
Joe

1181. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 18:14:07 UTC
From: mcalhoun@ksu.edu
Message-ID: <ds5f9f$pa4@unix1.cc.ksu.edu>
Source record: 64642

>>> What do folks use to run coax thru walls ?
>I drilled the wall and put in a section of PVC. Ran all the coax and
>then filled the PVC with foam in insulation.

Obviously one must fill the extra space with something just to keep bugs, snakes, and mice from crawling in, but foaming seems sorta final in that, when one wants to add another coax, the foam will need to be dug out.

I've always just stuffed fiberglas insulation around the coax, but here's a QUESTION: Would using steel wool (which mice won't chew) affect currents in and/or on the coax?

--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

1182. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 18:29:52 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <v5WdnShcXJaZ3nvenZ2dnUVZ_vidnZ2d@adelphia.com>
Source record: 64643

Joe S. wrote:

> John:
>
> THANK YOU!!! Exactly what I needed -- I don't know how you found that -- I
> spent an hour searching with Google for various combinations of
> anti-oxidant, antioxidant, applying, application, etc., etc.

It took a few tries, including adding the words [aluminum copper
electrical] to reduce the diet pill adds.

> I'll pick up a tube/can/jug/whatever of Penetrox tomorrow at my local
> electrical supply house, disassemble both antenna mounts and connectors,
> "abrade" them thoroughly, and slap the Penetrox onto every metal-to-metal
> junction.

For aluminum, (which oxidizes almost instantly in contact with air)
they recommend coating the surface and then doing the final abrading,
so the fresh surface has no contact, at all, with air, before the
joint is assembled. It sounds a little like trying to make a dry
joint under water.

1183. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 19:46:28 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <palcu1hust9cjah2rh6j7kev6av11rmnee@4ax.com>
Source record: 64644

On 5 Feb 2006 12:14:07 -0600, mcalhoun@ksu.edu wrote:

>I've always just stuffed fiberglas insulation around the coax, but here's
>a QUESTION: Would using steel wool (which mice won't chew) affect
>currents in and/or on the coax?

Naw, it won't have any noticeable effect on the coax. Sometime ago
some proposed packing steel wool around coax as a common mode choke,
however, Walter Maxwell did some measurements and found that was just
about worthless for choking.

73,

Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1184. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 20:30:39 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11ucnvqhck36j37@corp.supernews.com>
Source record: 64645

Foam is not a good idea. It can become very difficult to remove.

Best is to use cooper wool. It will not rust nor flake and beasties do
not eat it. The stuff has become hard to find, however.

73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
<mcalhoun@ksu.edu> wrote in message news:ds5f9f$pa4@unix1.cc.ksu.edu...
> >>> What do folks use to run coax thru walls ?
> >I drilled the wall and put in a section of PVC. Ran all the coax and
> >then filled the PVC with foam in insulation.
>
> Obviously one must fill the extra space with something just to keep bugs,
> snakes, and mice from crawling in, but foaming seems sorta final in that,
> when one wants to add another coax, the foam will need to be dug out.
>
> I've always just stuffed fiberglas insulation around the coax, but here's
> a QUESTION: Would using steel wool (which mice won't chew) affect
> currents in and/or on the coax?
>
> --
> --Myron A. Calhoun.

1185. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 21:02:56 UTC
From: David Shrader <W1MCE@comcast.net>
Message-ID: <FMedndDAK4Vj-nvenZ2dnUVZ_tCdnZ2d@comcast.com>
Source record: 64646

Scott wrote:
> I drilled the wall and put in a section of PVC. Ran all the coax and
> then filled the PVC with foam in insulation.
>
> Scott
> N2WMD
>
> On Sat, 04 Feb 2006 07:47:23 -0500, Amos Keag <A.K01@comcast.net>
> wrote:
>
>
>>Richard W. Solomon, W1KSZ wrote:
>>
>>
>>>I know you can get UHF type feedthrus in various lengths,
>>>but do they exist in "N" Connector style.
>>>What do folks use to run coax thru walls ?
>>>
>>>Tnx, Dick, W1KSZ
>>
>>Dick, I use a drill followed by a length of coax.
>>
>>!-)

FOAM?? No!

Dick, get a tube of colored caulking compound. I use BROWN for a brown house [of course]. It makes a weather and insect proof seal and is easily removed if needed [simply pull the coax and both the coax and caulking come right out].

Dave

1186. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 21:43:00 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <S8udnRU2w_PT7HveRVn-pw@comcast.com>
Source record: 64647

"John Popelish" <jpopelish@rica.net> wrote in message
news:v5WdnShcXJaZ3nvenZ2dnUVZ_vidnZ2d@adelphia.com...
> Joe S. wrote:
>
>> John:
>>
>> THANK YOU!!! Exactly what I needed -- I don't know how you found that --
>> I spent an hour searching with Google for various combinations of
>> anti-oxidant, antioxidant, applying, application, etc., etc.
>
> It took a few tries, including adding the words [aluminum copper
> electrical] to reduce the diet pill adds.
>
>> I'll pick up a tube/can/jug/whatever of Penetrox tomorrow at my local
>> electrical supply house, disassemble both antenna mounts and connectors,
>> "abrade" them thoroughly, and slap the Penetrox onto every metal-to-metal
>> junction.
>
> For aluminum, (which oxidizes almost instantly in contact with air) they
> recommend coating the surface and then doing the final abrading, so the
> fresh surface has no contact, at all, with air, before the joint is
> assembled. It sounds a little like trying to make a dry joint under
> water.

Thanks for pointing out that procedure. I noticed that in the instructions
you sent and I figured the rapid oxidation of aluminum was the reason.

1187. Beldon 8214

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-05 23:00:01 UTC
From: dustradio@copper.net
Message-ID: <1139180401.897959.93150@g44g2000cwa.googlegroups.com>
Source record: 64648

Wanted 50-60' of belden 8214 please assist, will pay pal!

Max

1188. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 00:29:52 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <4MwFf.1523$rL5.1310@newssvr27.news.prodigy.net>
Source record: 64649

Depends--- Choke to R.F.-- NO, Choke to Critters, like
mice, rats and other's, YES! and try S.O.S.- they don't
like soap in their mouths any more than you did as a kid!
Jim NN7K

Dan Richardson wrote:
> On 5 Feb 2006 12:14:07 -0600, mcalhoun@ksu.edu wrote:
>
>
>>I've always just stuffed fiberglas insulation around the coax, but here's
>>a QUESTION: Would using steel wool (which mice won't chew) affect
>>currents in and/or on the coax?
>
>
> Naw, it won't have any noticeable effect on the coax. Sometime ago
> some proposed packing steel wool around coax as a common mode choke,
> however, Walter Maxwell did some measurements and found that was just
> about worthless for choking.
>
> 73,
>
> Danny
>
>
>
>
> email: k6mhe<at>arrl<dot>net
> http://www.k6mhe.com/

1189. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 01:22:54 UTC
From: me <tuskyone@yahoo.com.au>
Message-ID: <ds68duoce1@news-02.connect.com.au>
Source record: 64650

well none of the above stops the Lightning getting into shack and racing
around zapping all and sundry ?
i got a Border Collie here that could get coax into a shack, stop getting
gear zapped , well thats different
heres what I did,
get ur coax from INSIDE TO OUTER WALL,
Terminate it pl259's or whatever, make 2 pieces of ally box section that
will fit together, on the outer side, alighn SO-239's on both ally pieces,
one to collect the coax from INSIDE the shack, and another row to collect
the terminated coax from the antennas,, slide the ally box section together,
and connect centre of SO-239's to SO -239's with BANANA PLUG centres to
ensure a RF connection,
position a Bolt on one side of one ally section, and form a S shaped piece
of ally flat with a hole drilled into it, to take a thin piece of rope,
terminate all so-239s with appropiate coax's ?/ all done, STORM comes, pull
rope, S shape pivots against the bolt in the ally section and UNPLUGS all
antennas together, KEEPING all the nasties OUTSIDE, when storm has gone
plug it back in,
been using one for 15 yrs,

73
will gladly take some pics if anyone wants

"David Shrader" <W1MCE@comcast.net> wrote in message
news:FMedndDAK4Vj-nvenZ2dnUVZ_tCdnZ2d@comcast.com...
> Scott wrote:
>> I drilled the wall and put in a section of PVC. Ran all the coax and
>> then filled the PVC with foam in insulation. Scott
>> N2WMD
>>
>> On Sat, 04 Feb 2006 07:47:23 -0500, Amos Keag <A.K01@comcast.net>
>> wrote:
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>>
>>>Richard W. Solomon, W1KSZ wrote:
>>>
>>>
>>>>I know you can get UHF type feedthrus in various lengths,
>>>>but do they exist in "N" Connector style.
>>>>What do folks use to run coax thru walls ?
>>>>
>>>>Tnx, Dick, W1KSZ
>>>
>>>Dick, I use a drill followed by a length of coax.
>>>

>>>!-)
>
> FOAM?? No!
>
> Dick, get a tube of colored caulking compound. I use BROWN for a brown
> house [of course]. It makes a weather and insect proof seal and is easily
> removed if needed [simply pull the coax and both the coax and caulking
> come right out].
>
> Dave
>

1190. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 03:50:55 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11udhp9n9si5kee@corp.supernews.com>
Source record: 64651

Reg: Your making such an obviously false statement calls into question
all of your pronouncements.
There is not a single student in my University (or any other similar
institution that I know of) who will graduate without providing many
demonstrations of their significant arithmetic and mathematical ability.
Your veracity is gone.

Mac N8TT
--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:ds3shv$295$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com...
>

==========
>
> Arithmetic is not taught in Western schools and universities any more.
> Even teachers are innumerate!
> ----
> Reg.
>
>

1191. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 04:47:12 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <kxAFf.5456$5E3.2772@newsread1.news.pas.earthlink.net>
Source record: 64652

Well, maybe... One of our Dobermans ate a whole box of SOS,
apparently because he LIKED the flavor of the soap!

73, Ed, W6LOL

"Jim - NN7K" <nn7kexk7zfg@NOSPAMsbcglobal.net> wrote in message
news:4MwFf.1523$rL5.1310@newssvr27.news.prodigy.net...
> Depends--- Choke to R.F.-- NO, Choke to Critters, like
> mice, rats and other's, YES! and try S.O.S.- they don't
> like soap in their mouths any more than you did as a kid!
> Jim NN7K
>
>
> Dan Richardson wrote:
> > On 5 Feb 2006 12:14:07 -0600, mcalhoun@ksu.edu wrote:
> >
> >
> > >>I've always just stuffed fiberglas insulation around the coax, but
here's
> > >>a QUESTION: Would using steel wool (which mice won't chew) affect
> > >>currents in and/or on the coax?
> >
> >
> > Naw, it won't have any noticeable effect on the coax. Sometime ago
> > some proposed packing steel wool around coax as a common mode choke,
> > however, Walter Maxwell did some measurements and found that was just
> > about worthless for choking.
> >
> > 73,
> >
> > Danny
> >
> >
> >
> >
> > email: k6mhe<at>arrl<dot>net
> > http://www.k6mhe.com/

1192. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 04:55:13 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <f8kdu19qrac45savp37igbskevmvadjdi5@4ax.com>
Source record: 64653

On Sun, 5 Feb 2006 22:50:55 -0500, "J. Mc Laughlin"
<jcm@power-net.net> wrote:

>Reg: Your making such an obviously false statement calls into question
>all of your pronouncements.
> There is not a single student in my University (or any other similar
>institution that I know of) who will graduate without providing many
>demonstrations of their significant arithmetic and mathematical ability.
> Your veracity is gone.

C'Mon Mac,

Reggie has been doing this so many years, it's his trademark schtick.
To give Reggie credit where credit is due, can be found in a
remarkable body of work of programs. Unfortunately, this
accomplishment is seriously tipped out of balance when he scorns his
audience as software addicts.

Instead of teaching them Kelvin's principles by example, we get his
poor English stagings of Le Misanthrope de Moliere.

One of my favorite irascible English characters is Dr. Samuel Johnson,
but his ire is tempered with a faith in humanity:
"this boy rows us as well without learning, as if he could sing
the song of Orpheus to the Argonauts, who were the first sailors.'
He then called to the boy, 'What would you give, my lad, to know
about the Argonauts?' 'Sir (said the boy,) I would give what I
have.' Johnson was much pleased with his answer, and we gave him a
double fare. Dr. Johnson then turning to me, 'Sir, (said he) a
desire of knowledge is the natural feeling of mankind; and every
human being, whose mind is not debauched, will be willing to give
all that he has to get knowledge.' "

73's
Richard Clark, KB7QHC

1193. Re: antenas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 10:15:38 UTC
From: byrnecut <steve531@bigpond.com.au>
Message-ID: <1139220938.892265.296820@g14g2000cwa.googlegroups.com>
Source record: 64654

no its off a 4 wheel drive spring mounted with detail on spring part,
terlin aerials w.a. on aerial it has got lencom antennas pty ltd s/no
f 113 i have tryed theses sites no go

1194. Re: Beldon 8214

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 16:41:47 UTC
From: GS <spam@limbo.hell>
Message-ID: <8%KFf.1435$J%6.86558@news20.bellglobal.com>
Source record: 64655

See www.k1cra.com

This product is very similar to RG8/U I would look at the CQ "Super-8"
which is an even better product in terms of lower loss.

73's
Guenther VE3CVS

<dustradio@copper.net> wrote in message
news:1139180401.897959.93150@g44g2000cwa.googlegroups.com...
> Wanted 50-60' of belden 8214 please assist, will pay pal!
>
> Max
>

1195. Re: Beldon 8214

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 18:17:00 UTC
From: "R. Scott" <rickw7psk@gmail.com>
Message-ID: <IuA2sB.Eu3@news.boeing.com>
Source record: 64656

GS" <spam@limbo.hell> wrote in message
news:8%KFf.1435$J%6.86558@news20.bellglobal.com...
> See www.k1cra.com
>
> This product is very similar to RG8/U I would look at the CQ "Super-8"
> which is an even better product in terms of lower loss.
>
> 73's
> Guenther VE3CVS

I use this by DavisRF products. Very Reasonable and great shipping .

9913, double shield (100%), 50 ohm, solid 9.5 AWG copper center cond, 84%
VP, PVC jacket.

http://www.davisrf.com/ham1/coax.htm

1196. Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 18:57:07 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <7_MFf.10650$915.3051@southeast.rr.com>
Source record: 64657

Ok, my first test failed so far. Example of what I am doing is here http://home.triad.rr.com/tempdir/images/layout.jpg. My next thing I am thinking about trying is to place some kind of somewhat small (no billboard) passive repeater at the end of the powerline attached to a utility pole where it meets the field. No power this far out and trenching is not an option. I can google and find hords of info about people using passive repeaters to bend the signal but I cannot find an actual passive repeater or how to build one. Also when dealing with this type of repeater would it force me to have directional antenna's at both ends where currently I have only the one directional parabolic grid at the top of the powerline and just a standard AP inside the building. Anyone think of anything else that may work. going over the forest is also not an option. I own the land where the grid antenna is located but I dont own the land where the building is located as I just have permission to place a AP at that site. I am trying to make the impact as minimal as possible at that site.

Bryan

--
Poor planning on your part does not constitute an emergency on my part.

1197. Coax Cable & Connector Catalog

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 19:56:58 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <iSNFf.22080$sA3.8954@fed1read02>
Source record: 64658
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.homebrew

For your free copy of our new catalog,

Please email sales@AAARFProducts.com

or see www.aaarfproducts.com

or call 949 481 3154 (San Clemente, CA, USA)

No minimum order.

No handling charges.

1198. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 20:29:29 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <96okb3-td.ln1@p400bob.personal.cox.net>
Source record: 64659

Hi again Bryan

A passive repeater is very simple.

You simply take two antennas and join them with feeder, then point one antenna at one end of the link and the other at the other end of the link. You may need to separate them some so they dont interfere with each others capture pattern.

There will be a link budget that defines how much system gain (and thus antenna gain) you need. You could conceivably get away with using the standard AP antenna at that one end. As I said previously the software I use for this is broken and I am not in a position to redo it by hand just at the moment. There is a simple formula for determining path loss over a line of sight path. You just do that twice with the received strength at the repeater being the source power for the next link (minus about 3dB)

What are the distances from each site to the passive rptr location? If one does the calclulation then outoput power and receiver sensitivity is also needed.

Cheers Bob

Bryan Martin wrote:
> Ok, my first test failed so far. Example of what I am doing is here
> http://home.triad.rr.com/tempdir/images/layout.jpg. My next thing I am
> thinking about trying is to place some kind of somewhat small (no billboard)
> passive repeater at the end of the powerline attached to a utility pole
> where it meets the field. No power this far out and trenching is not an
> option. I can google and find hords of info about people using passive
> repeaters to bend the signal but I cannot find an actual passive repeater or
> how to build one. Also when dealing with this type of repeater would it
> force me to have directional antenna's at both ends where currently I have
> only the one directional parabolic grid at the top of the powerline and just
> a standard AP inside the building. Anyone think of anything else that may
> work. going over the forest is also not an option. I own the land where
> the grid antenna is located but I dont own the land where the building is
> located as I just have permission to place a AP at that site. I am trying
> to make the impact as minimal as possible at that site.
>
> Bryan
>

1199. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 21:12:34 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <4AydnZv0TsUhJnreSa8jmw@karoo.co.uk>
Source record: 64660

dansawyeror wrote:

> All,
>
> I am trying to run 4nec2 under linux using wine. It loads and runs fine
> until a bat file is engaged. The bat files are not supported under linux.
> Is there a way to translate bat files to linux?
>
> Thanks - Dan

Emulating a NEC for Windooze in Linux?!

Why are you not running a native NEC - compiled for Linux?

Try

http://radio.linux.org.au/?sectpat=antenna&ordpat=title

Cheers

Dan / M0DFI

1200. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 21:47:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds8g4r$6r$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64661

"Bob Bob" wrote
> I would also
> like to get an idea how "critical" it is to make sure ones antenna
truly
> is horizontal (eg not an inverted V or quad loop) if noise is the
> greatest concern.
>
> One would assume you also get a similar affect of "less horizontal
> noise" from the actual noise source for the same reason. eg power
lines
> radiate well upwards but not so well in groundwave.
==
Bob,

The angle of the 'horizontal' dipole relative to the horizontal, whether it is an inverted-V or not, makes negligible difference to the amount of noise it collects. It is non-critical in this respect.

The incoming, mainly distant noise comes in from all directions and angles and is randomly polarised. Except, that is, for locally generated noise, which is mainly a vertically polarised ground-wave and from low angles to which the horizontal dipole is quite insensitive.

Noise radiated from nearby elevated power lines is probably randomly polarised and is collected in similar proportions by both horizontal and vertical antennas. When a power line is half-mile or more away I would guess that the received noise reverts to vertically polarised groundwaves which at HF are rapidly attenuated. The horizontal waves are even more rapidly attenuated.

Noise can be studied only from its statistical probability distributions versus direction, angle, frequency, receiver bandwidth and time. The opinions and anecdotes of individuals matter only to the inviduals concerned and their locations on the Earth's surface.

Reg.

1201. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 23:24:05 UTC
From: richardharrison@webtv.net
Message-ID: <22148-43E7DA95-635@storefull-3258.bay.webtv.net>
Source record: 64662

Bryan Martin wrote:
"I can google and find hordes of info about people using passive
repeaters to bend the signal but I cannot find an actual passive
pepeater or how to build one."

Maybe that is because the billboard reflector is close to 98% efficient,
while back-to-back antennas are only about 30% efficient.

Best regards, Richard Harrison, KB5WZI

1202. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 23:52:59 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <q_udnSaWfljHfHreRVn-qQ@adelphia.com>
Source record: 64663

Roy Lewallen wrote:

>
> A step attenuator which is completely adequate for HF and can easily
> resolve 1 dB can be made from a few cheap slide switches, some PC board
> material, and a handful of ordinary 5% quarter watt resistors. Detailed
> instructions can be found in numerous sources, including the Web -- a
> Google search brought a large number of hits, the first of which was
> http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm afraid that this
> level of homebrewing is beyond the interest if not the ability of the
> majority of today's amateurs.

Got it - Thanks, Roy!

- 73 de Mike KB3EIA -

1203. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-06 23:58:51 UTC
From: Russ <carlzomer@hotmail.com>
Message-ID: <qjofu1tp84recfn7boq9fi9g2e07uim6r2@4ax.com>
Source record: 64664

On Mon, 06 Feb 2006 21:12:34 +0000, Dan Andersson
<dan@andersson.co.uk> wrote:

>dansawyeror wrote:
>
>> All,
>>
>> I am trying to run 4nec2 under linux using wine. It loads and runs fine
>> until a bat file is engaged. The bat files are not supported under linux.
>> Is there a way to translate bat files to linux?
>>
>> Thanks - Dan
>
>
>Emulating a NEC for Windooze in Linux?!
>
>Why are you not running a native NEC - compiled for Linux?
>
>Try
>
>http://radio.linux.org.au/?sectpat=antenna&ordpat=title
>
>
>Cheers
>
>
>Dan / M0DFI

Nice concept. Too bad that www.qsl.net is offline or otherwise
inreachable (at least right now).

R

1204. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 00:04:44 UTC
From: Russ <carlzomer@hotmail.com>
Message-ID: <ltofu11innq9130ebbqgr7igc7i6is8k33@4ax.com>
Source record: 64665

On Mon, 06 Feb 2006 21:12:34 +0000, Dan Andersson
<dan@andersson.co.uk> wrote:

>dansawyeror wrote:
>
>> All,
>>
>> I am trying to run 4nec2 under linux using wine. It loads and runs fine
>> until a bat file is engaged. The bat files are not supported under linux.
>> Is there a way to translate bat files to linux?
>>
>> Thanks - Dan
>
>
>Emulating a NEC for Windooze in Linux?!
>
>Why are you not running a native NEC - compiled for Linux?
>
>Try
>
>http://radio.linux.org.au/?sectpat=antenna&ordpat=title
>
>
>Cheers
>
>
>Dan / M0DFI

Follow-up to my follow-up...all of the servers listed in "whois" are
not reachable, the pings time out. I hope there are mirrors available
and someone can change the pages listed above.

R

1205. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 00:55:38 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <eeSFf.10663$915.3480@southeast.rr.com>
Source record: 64667

The building location is maybe 500 feet away from where the repeater would be. The parabolic grid is maybe 3000-3500 feet away from the repeater location.

As for the output we will talk about the grid antenna first. It is currently at 28mw which is adjustable up to 250mw but I would be way over the limit with the 24db gain antenna (also the way I understand it which is a learning in process I should not need to increase the xmit power due to the focus of the directional type antenna). Plus since this will be out in the open in a sealed weather proof box I don't want heating problems or bird nuking etc.... Sadly I am unable to find out what the current MN-700 AP which is located in the building transmits at or what the gain of the stock antenna's is. I have purchased another AP similar to the one hooked to the grid antenna which by default would be transmitting at 28mw with 7db gain rubber duck antenna.

Passive antenna
"You simply take two antennas and join them with feeder". Help me out a bit here if possible. So I take two antenna's such as (http://sharperconcepts.zoovy.com/c=6buOjuTwyhk8OnXuIOz6ZqKK6/product/YSC-HG2409Y) and hook the pig tails together? Point one at the grid and one at the building right? Does the gain really matter? Do they need to both be directional?

"You may need to separate them some so they dont interfere with each others capture pattern."
I dont think this would be an issue as one would have to be on 1 side of the utility pole and one on the other. Do you think this would cause problems?

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:96okb3-td.ln1@p400bob.personal.cox.net...
> Hi again Bryan
>
> A passive repeater is very simple.
>
> You simply take two antennas and join them with feeder, then point one
> antenna at one end of the link and the other at the other end of the link.
> You may need to separate them some so they dont interfere with each others
> capture pattern.
>
> There will be a link budget that defines how much system gain (and thus
> antenna gain) you need. You could conceivably get away with using the
> standard AP antenna at that one end. As I said previously the software I
> use for this is broken and I am not in a position to redo it by hand just
> at the moment. There is a simple formula for determining path loss over a

> line of sight path. You just do that twice with the received strength at
> the repeater being the source power for the next link (minus about 3dB)
>
> What are the distances from each site to the passive rptr location? If one
> does the calclulation then outoput power and receiver sensitivity is also
> needed.
>
> Cheers Bob
>
> Bryan Martin wrote:
>> Ok, my first test failed so far. Example of what I am doing is here
>> http://home.triad.rr.com/tempdir/images/layout.jpg. My next thing I am
>> thinking about trying is to place some kind of somewhat small (no
>> billboard) passive repeater at the end of the powerline attached to a
>> utility pole where it meets the field. No power this far out and
>> trenching is not an option. I can google and find hords of info about
>> people using passive repeaters to bend the signal but I cannot find an
>> actual passive repeater or how to build one. Also when dealing with this
>> type of repeater would it force me to have directional antenna's at both
>> ends where currently I have only the one directional parabolic grid at
>> the top of the powerline and just a standard AP inside the building.
>> Anyone think of anything else that may work. going over the forest is
>> also not an option. I own the land where the grid antenna is located but
>> I dont own the land where the building is located as I just have
>> permission to place a AP at that site. I am trying to make the impact as
>> minimal as possible at that site.
>>
>> Bryan
>>

1206. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 00:56:37 UTC
From: Bryan Martin <spam@myplaceinspace.com>
Message-ID: <9fSFf.10664$915.8953@southeast.rr.com>
Source record: 64666

You lost me somewhere. Was this supposed to help or was it just a slam?

"Richard Harrison" <richardharrison@webtv.net> wrote in message
news:22148-43E7DA95-635@storefull-3258.bay.webtv.net...
> Bryan Martin wrote:
> "I can google and find hordes of info about people using passive
> repeaters to bend the signal but I cannot find an actual passive
> pepeater or how to build one."
>
> Maybe that is because the billboard reflector is close to 98% efficient,
> while back-to-back antennas are only about 30% efficient.
>
> Best regards, Richard Harrison, KB5WZI
>

1207. Rocket Antennas...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 01:11:44 UTC
From: pbreed@netburner.com
Message-ID: <9asfu1lrtksihlbhvl2ns6kk948apfg02l@4ax.com>
Source record: 64668

I'm helping the SDSU mechanical engineering students with their Rocket.
See: http://www-rohan.sdsu.edu/%7esharring/sdsurocket.html

I've asked for help on this group before, but the response went over my head.
I a reasonably skilled EE, with ZERO antenna design experience.

I would like to design an antenna that was conformal with the rocket main tube.
The rocket is about 8" in diameter and all metal.

I need two antennas....
I have two channels a 70cm ATV transmitter and a 900Mhz non-ham telemetry radio.

For the last attempt:

Telemetry: I put two 1/4 wave verticals on opposite sides of the rocket fed them with a minicircuits splitter.
This worked well as I got data from lift off to impact.

ATV Last attempt I just had a single 1/4 wave dipole sticking out one side of the rocket.
As the rocket rolled the signal faded in and out.

The last time I asked this question I got a response that I could not use because I did not understand it.

So I'm looking for someone to help that can do the detail design.

IE provide instructions build a tobe with this pattern on it, hook up coax here and trim this spot to adjust SWR.
I'm perfectly willing to get the fabrication done, but the design is beyond me.

I realize that I'm asking a lot, but any one that wants to help with the antenna can have a front row seat in the block house to watch it launch, and some cool video tape ;-)
(The launch will be at the MTA near Mojave, CA)

Paul (Kl7JG)

1208. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 02:34:47 UTC
From: richardharrison@webtv.net
Message-ID: <7443-43E80747-546@storefull-3257.bay.webtv.net>
Source record: 64669

Bryan Martin wrote:
"Was this supposed to help or was it just a slam?"

No, my response was factual, neumeric, and specific. It was not meant as a slam. Reflectors are less lossy than back-to-back antennas. If you are using microwaves, the size of the reflector may be practical.

The peflector in the path is most effective when placed near either end of the path. The reflector can also produce gain over that produced by the antennas at the path ends. It must be slightly concave to do so. Commercial reflectors often come equipped with an adjustment to suck in the center of the reflector for maximum gain once alignment of the dishes is accomplished. This isn`t speculation. I`ve designed the paths and performed the adjustments with my own hands.

Best regatds, Richard Harrison, KB5WZI

1209. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 03:12:24 UTC
From: richardharrison@webtv.net
Message-ID: <1331-43E81018-167@storefull-3255.bay.webtv.net>
Source record: 64671

Reg, G4FGQ wrote:
"The angle of the "horizontal" dipole relative to the horizon, whether it is an inverted V or not, makes negligible difference to the amount of noise it collects."

It could be taken to the extreme. Rotated 90-degrees, the horizontal wire becomes a vertical wire. On its way to becoming a vertical wire, it is a sloping wire. The sloping wire responds with a vertical component in addition to its horizontal component. The sum of these components make up the wire`s total response.

To the best of my knowledge, Reg hit the nail squarely on the head in the rest of his posting about noise radiation and reception.

Best regards, Richard Harrison, KB5WZI

1210. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 03:13:19 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <bYKdndGgw6nSjXXeRVn-ow@adelphia.com>
Source record: 64670

Reg Edwards wrote:
> "Bob Bob" wrote
>
>>I would also
>>like to get an idea how "critical" it is to make sure ones antenna
>
> truly
>
>>is horizontal (eg not an inverted V or quad loop) if noise is the
>>greatest concern.
>>
>>One would assume you also get a similar affect of "less horizontal
>>noise" from the actual noise source for the same reason. eg power
>
> lines
>
>>radiate well upwards but not so well in groundwave.
>
> ==
> Bob,
>
> The angle of the 'horizontal' dipole relative to the horizontal,
> whether it is an inverted-V or not, makes negligible difference to the
> amount of noise it collects. It is non-critical in this respect.
>
> The incoming, mainly distant noise comes in from all directions and
> angles and is randomly polarised. Except, that is, for locally
> generated noise, which is mainly a vertically polarised ground-wave
> and from low angles to which the horizontal dipole is quite
> insensitive.
>
> Noise radiated from nearby elevated power lines is probably randomly
> polarised and is collected in similar proportions by both horizontal
> and vertical antennas. When a power line is half-mile or more away I
> would guess that the received noise reverts to vertically polarised
> groundwaves which at HF are rapidly attenuated. The horizontal waves
> are even more rapidly attenuated.
>
> Noise can be studied only from its statistical probability
> distributions versus direction, angle, frequency, receiver bandwidth
> and time. The opinions and anecdotes of individuals matter only to the
> inviduals concerned and their locations on the Earth's surface.

I guess that what you are saying is true.

But Truth and truth can be different things when I can take cold comfort that statistically the different antennas should "hear" the same, while my situation is otherwise. I get a lot of noise with it compared to my dipole. I doubt that I can do a lot about it. And while the antenna does pick up many desirable signals more strongly than the dipole, the dipole's relative quietness makes me believe that I may be able to discern weaker signals with more readability.

And whether my opinion is valid or not, I believe it is the truth of my situation, and many others.

- 73 de Mike KB3EIA -

1211. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 03:49:05 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11ug61r5qor0f6d@corp.supernews.com>
Source record: 64672

Dear Richard:
You have said it so well!
I fell for the taunt of the tar-baby.
Thank you for the literate and appropriate quote from Johnson. For some
unexplainable reason, I once read all of Boswell's journals. I had more
time in those days.
73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:f8kdu19qrac45savp37igbskevmvadjdi5@4ax.com...
> On Sun, 5 Feb 2006 22:50:55 -0500, "J. Mc Laughlin"
> <jcm@power-net.net> wrote:
>
> >Reg: Your making such an obviously false statement calls into
question
> >all of your pronouncements.
> > There is not a single student in my University (or any other similar
> >institution that I know of) who will graduate without providing many
> >demonstrations of their significant arithmetic and mathematical ability.
> > Your veracity is gone.
>
>
> C'Mon Mac,
>
> Reggie has been doing this so many years, it's his trademark schtick.
> To give Reggie credit where credit is due, can be found in a
> remarkable body of work of programs. Unfortunately, this
> accomplishment is seriously tipped out of balance when he scorns his
> audience as software addicts.
>
> Instead of teaching them Kelvin's principles by example, we get his
> poor English stagings of Le Misanthrope de Moliere.
>
> One of my favorite irascible English characters is Dr. Samuel Johnson,
> but his ire is tempered with a faith in humanity:
> "this boy rows us as well without learning, as if he could sing
> the song of Orpheus to the Argonauts, who were the first sailors.'
> He then called to the boy, 'What would you give, my lad, to know
> about the Argonauts?' 'Sir (said the boy,) I would give what I
> have.' Johnson was much pleased with his answer, and we gave him a
> double fare. Dr. Johnson then turning to me, 'Sir, (said he) a

> desire of knowledge is the natural feeling of mankind; and every
> human being, whose mind is not debauched, will be willing to give
> all that he has to get knowledge.' "
>
> 73's
> Richard Clark, KB7QHC

1212. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 04:36:34 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds984i$br4$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64673

Regardless of its noise properties, a quarter-wave and higher vertical
radiates more low-angle power than a half-wave horizontal dipole.
There's no argument. If you can't be heard then you can't work 'em.

Although a quarter-wave vertical radiates less power at high angles,
it can still be heard quite well because propagation distances covered
are relatively short.

The vertical is omni-directional. The dipole is not.

Skip-distances are the same for both vertical and horizontal. The
Ancient Greeks Geometry rules.

Therefore, the situation is biassed in favor of the vertical.

The dipole wins only when the local noise level is much higher than
atmospheric noise. If you live in or near a city then its your hard
luck. Most of us do!

Reg.

1213. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 05:01:36 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11ugadllou7lsff@corp.supernews.com>
Source record: 64674

Mike Coslo wrote:
> Roy Lewallen wrote:
>
>>
>> A step attenuator which is completely adequate for HF and can easily
>> resolve 1 dB can be made from a few cheap slide switches, some PC
>> board material, and a handful of ordinary 5% quarter watt resistors.
>> Detailed instructions can be found in numerous sources, including the
>> Web -- a Google search brought a large number of hits, the first of
>> which was http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm afraid
>> that this level of homebrewing is beyond the interest if not the
>> ability of the majority of today's amateurs.
>
>
> Got it - Thanks, Roy!
>
> - 73 de Mike KB3EIA -

You're very welcome.

The reason for my rather grumpy comment at the end is that I've recommended countless times for many years that people interested in evaluating antennas build a simple step attenuator -- an evening project. It allows you to make direct, quantitative comparisons between two antennas -- yours or someone else's, as well as calibrate your "S" meter. But to date, I've never gotten an iota of feedback that a single person has actually taken the trouble to build one. Rather, they continue to debate, ad nauseum and without any meaningful data, whether one antenna is better than the other, or at best quote differences in "S-units" read from their meters, without the foggiest idea how many dB it might represent or how different it is from someone else's meter (or from the same meter on a different band or a different part of the scale). The conclusion I've reached is that A) Hams would much rather argue than actually determine the facts, or B) The vast majority are unable to build a homebrew project consisting of slide switches, circuit board material, and resistors. I'm afraid both are probably true.

Maybe you'll be the first to actually build one. If so, please drop me an email and let me know -- it'll make my day!

Roy Lewallen, W7EL

1214. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 06:05:01 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ds9dad$m3r$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64675

"Roy Lewallen" wrote
> The reason for my rather grumpy comment at the end is that I've
> recommended countless times for many years that people interested in
> evaluating antennas build a simple step attenuator -- an evening
> project.

==========

Roy, to cheer you up, many years back I made one in a diecast Eddystone box. The last decade was in 0.001 dB steps. It was intended only up to 5 MHz.

It was used to determine the attenuation/temperature coefficients of oceanic, submarine coaxial cables, 26 miles long, in tanks at the cable factory. Temperature was changed by dumping a ton of ice into the tank, obtained from Billingsgate, London, fish market. I think the fish market is still in Billingsgate but the attenuator has long since disappeared. Perhaps the knobs still exist somewhere. Very sad!

Reg.

1215. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 06:14:25 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <wSWFf.68$pM6.60@bignews4.bellsouth.net>
Source record: 64576

Example scenario:
There's a mountain between your house and the tv station and you cannot pick up a tv signal to watch.
SO - you buy 3 high-gain direction tv antennas at radio shack.
You go up to the top of the mountain and set one antenna to point to the tv station, and one of the other antennas to point toward your house.
The 2 antennas on the mountain feed to each other with 300-ohm ribbon cable-like the other antenna was the tv set. (one acts like a receiver, and the other like a transmitter.)
The third high-gain antenna is at your house - pointed to the antenna on top of the mountain. This antenna feeds to your tv.
So yes - you need directional antennas - three of them.
The antennas need to 'see' each other.
I heard of folks using rhombic antennas on the mtn (uhf and vhf) - good gain.

"Bryan Martin" <spam@myplaceinspace.com> wrote in message news:eeSFf.10663$915.3480@southeast.rr.com...
> The building location is maybe 500 feet away from where the repeater would
> be. The parabolic grid is maybe 3000-3500 feet away from the repeater
> location.
>
> As for the output we will talk about the grid antenna first. It is

1216. Re: Pulley Arrangement For Horiz. Antenna ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 06:23:57 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9762E3D68DDB6doldridgsprintca@64.59.135.159>
Source record: 64577

"Robert11" <rgsros@notme.com> wrote in
news:l7SdnRxtINYOzX7eRVn-iA@comcast.com:

> Hi,
>
> Pretty sure I'll probably be able to come up with something that will
> more or less work, but was wondering if any of you folks have a real
> clever solution for this:
>
> Will be stringing a horiz wire listening only antenna between two
> trees out back.
> Trees have a fair amount of movement, particularly in the winter.
>
> So, I thought I'd fasten one end securely, and then use the pulley
> arrangement, with a hanging weight, like you see in all the pix for
> this sort of thing.
>
> But, we get a lot of ice and freezing rain, and I doubt that the
> pulley would really function well, if at all in the winter.
> But, perhaps ?
>
> Think a large metal ring, with a Dacron rope goint thru (one end to
> the wire end) would be better ?
> Coat Dacron with Silicone Spray ?

Basic rule of thumb: If an antenna stays up all winter it wasn't big
enough. <Grin, duck and run>

--
Dave Oldridge+
ICQ 1800667

1217. 160m antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 07:58:15 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <uujgu1ps47o0olfio3qefelpla3irj7iqe@4ax.com>
Source record: 64578

Hi. I'm looking for more creative ideas. I live in a typical suburban setting. I have a 100' oak tree out back with a clear base of 65' on to one side; 75' to the other. I've EZNEC'd a variety of antennas from center fed (ladder line) inverted vee resonant at about 2.4MHz. Moved to offset fed versions which works over more bands but still not quite a low enough swr to load with a palstar balanced tuner on 160. Moved on to a 'triangle' antenna made by adding a wire base to the inverted vee about 2-' off the ground. Now I've got enough length, but the swr is squirrely on all abnds because of the interaction of the short legs (I guess it's a short delta with only the driven element.). So, it appears I'll have to wait until the kids graduate and a move to the countryside is in order.
I know it won't work as well as a wavelength loop with a huge mesh metal fence counterpoise, but it would be nice to try and ragchew on 160m while the sunspot cycle is zilch. Any weird topologies come to mind? And still let me load up 80/40m?
jimg
Oregon
USA

1218. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 10:04:25 UTC
From: nm5k@wt.net
Message-ID: <1139306665.505980.318940@g47g2000cwa.googlegroups.com>
Source record: 64579

Rather, they
continue to debate, ad nauseum and without any meaningful data, whether
one antenna is better than the other, or at best quote differences in
"S-units" read from their meters, without the foggiest idea how many dB
it might represent or how different it is from someone else's meter (or
from the same meter on a different band or a different part of the
scale). The conclusion I've reached is that A) Hams would much rather
argue than actually determine the facts, or B) The vast majority are
unable to build a homebrew project consisting of slide switches,
circuit
board material, and resistors. I'm afraid both are probably true.
.....
.....
.....

In my case, I suppose I could build one. I am capable. But the honest
truth is I really don't care exactly how many DB's a certain antenna is
vs
another when testing on the air. Or how many DB's my S meter reads.
All I care about is which is better. A or B. The ionosphere will skew
any
measurements, so to me, not much point. Now, if I were testing
antennas against each other on a antenna testing range, I wouldn't be
without one.
As an example, if I were to measure the DB increase of a GP vs dipole
on 40m, the difference would increase as the path got farther and
farther.
I wouldn't really be measuring the antennas per say, I'd be measuring
the overall big picture including the propogation effects. So I don't
see
much need to put an exact number on it. As long as I can tell which is
better, I'm a happy camper. I'd use the attenuator when doing fine
comparions of antennas in a controlled envionement. IE: good for
measuring the gain of a homebrew 2m yagi, vs a dipole, etc in a
space wave envionment.
When quoting S meter readings, I never try to equate those with
any numerical gain.. It's just a relative method of seeing which one
is best.
MK

1219. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 10:04:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11ugs6fc94rabf4@corp.supernews.com>
Source record: 64580

I keep hearing about "passive repeaters", but haven't ever seen anything quantitative about how well they work. I had some measurements done years ago which showed that a cell phone "passive repeater" in a sedan doesn't do anything significant, quite obviously because the windows are such large apertures at that frequency.

But here are some numbers to work with. Corrections are welcome.

Assuming perfect efficiency, the maximum effective aperture of an antenna is Aem = G * lambda^2 / (4 * pi), where

lambda = the wavelength
G = the antenna's numerical power gain in the direction being analyzed

The gain in dBi = 10 * log[base10](G). For convenience, use meters for length dimensions, so the aperture is in square meters and the wavelength is in meters.

This means that if we have a field with power density Pdi striking an antenna with power gain G1 (in the direction the field is coming from), the antenna can deliver Pdi * Aem watts to a conjugately matched load.

Now let's connect this antenna to a second antenna with numerical power gain G2, and assume that the two are perfectly matched to each other. That is, the input impedance of the second antenna is the complex conjugate of the impedance the first antenna has when driven. Also assume no loss in the connecting line.

The power delivered to the second antenna is then Pdi * Aem watts.

The second antenna will radiate a field with power density equal to G2 times that of an isotropic antenna supplied with the same power, or

G2 * (Pdi * Aem) / (4 * pi * r^2)

where r is the distance from the antenna in the direction in which the gain is measured.

Combining these to find the ratio of power density of the field radiated from the second antenna to the power density of the field striking the first antenna, we get:

P density ratio = G1 * G2 * (lambda / (4 * pi * r))^2

This is the numerical gain you'll see between the field at the location of the first passive receiver antenna to the field at a distance r from the second (radiating) passive receiver antenna. A ratio of less than one represents attenuation rather than gain. The gain in dB is 10 * the

base 10 logarithm of this ratio, with negative results representing attenuation. That is,

Overall gain (dB) = 10 * log[base 10](P density ratio)

Now let's look at a couple of examples. For simplicity, assume that none of the original field arrives at the detector location; that is, there's a perfect shield or obstruction between the original field and the detector (technically, the detector's antenna). It doesn't matter what kind of antenna is physically connected to the detector for this analysis. In real life, the detector would probably be a receiver, but I'll call it a detector so hopefully its antenna won't be confused for either of the two passive receiver's antennas.

Let G1 = G2 = 10 -- both antennas comprising the passive repeater have 10 dBi gain (although don't forget that G1 and G2 are numerical, not dB gains -- the two numbers just happen to be the same in the case of 10). Wavelength = 30 meters (10 MHz frequency), and r = 10 meters -- we've put the detector's antenna 10 meters from the second (radiating) passive repeater antenna(*).

Working through the numbers, the power density at the detector's antenna is 5.7 times, or 7.56 dB greater than, the power density striking the first antenna. So the signal is stronger than it would have been if we'd put the detector's antenna right where the first passive repeater antenna is. Don't forget, though, that it took two 10 dBi antennas to get that 7.56 dB gain.

But now let's look at the same setup but at 150 MHz (2 meter wavelength). The power density at the detector's antenna in this case is just 2.5% of (or 15.96 dB less than) the power density of the field striking the first antenna.

In all cases, if we move the detector's antenna twice as close to the second (radiating) passive repeater antenna, that is, to 5 meters away, we'll gain 6 dB; if we double the distance to 20 meters we lose 6 dB. Before you say, "Aha! let's put the detector antenna 0.000001 meter from the passive repeater antenna and get incredible gain!" you have to realize that the antenna gain is achieved only in the far field, so you've got to keep a good part of a wavelength away for the rules to hold. Actually, 5 meters is almost certainly too close for the gain to be valid at 10 MHz. The actual gain at any distance and field strength for a given input power could easily be determined for a particular antenna by modeling.

Why does the wavelength make such a big difference? Well, think of the size of the field each antenna intercepts. Both the 10 MHz and 150 MHz antennas have the same gain, so the former is dimensionally 15 times larger than the latter, or 15^2 = 225 times the area. Consquently, the 10 MHz antenna intercepts 225 times the power that the 150 MHz antenna does(**). 225 is exactly the ratio between the 10 and 150 MHz results of 5.7 and 0.025 (if carried out a few more places).

If you know how much signal strength margin you have at the point where you put the first passive receiver antenna, you can use the equation above to calculate how much antenna gain you'll need for your passive repeaters and how close you'll have to put your receiver's antenna to the second (radiating) passive receiver antenna, or how to trade the two. Note that I've assumed perfect match and no loss. If, for example, there's loss in the transmission line between the two passive repeater antennas, that loss in dB will directly subtract from the overall passive repeater gain (or add to the overall passive repeater attenuation).

(*) 10 meters is only 1/3 wavelengh so a bit close. The nominal antenna gain might not actually be realized at that short distance. But I'll assume it is.

(**) Please don't infer from this that aperture has any obvious relationship to physical antenna area except in so-called "aperture antennas" such as horns or parabolic antennas which have large physical dimensions. The antennas under discussion have apertures proportional to their physical areas only because they're assumed to be physically identical except for a scaling factor. In general, antennas with widely different physical areas can have the same aperture, and antennas with the same physical area can have widely different apertures.

Roy Lewallen, W7EL

1220. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 10:32:01 UTC
From: Mike Coombes <vk6mo@iinet.net.au>
Message-ID: <43e87729$0$30446$5a62ac22@per-qv1-newsreader-01.iinet.net.au>
Source record: 64581

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11ugs6fc94rabf4@corp.supernews.com...
>I keep hearing about "passive repeaters", but haven't ever seen anything
>quantitative about how well they work. I had some measurements done years
>ago which showed that a cell phone "passive repeater" in a sedan doesn't do
>anything significant, quite obviously because the windows are such large
>apertures at that frequency.
>
> But here are some numbers to work with. Corrections are welcome.
>
> Assuming perfect efficiency, the maximum effective aperture of an antenna
> is Aem = G * lambda^2 / (4 * pi), where
>
> lambda = the wavelength
> G = the antenna's numerical power gain in the direction being analyzed
>
> The gain in dBi = 10 * log[base10](G). For convenience, use meters for
> length dimensions, so the aperture is in square meters and the wavelength
> is in meters.
>
> This means that if we have a field with power density Pdi striking an
> antenna with power gain G1 (in the direction the field is coming from),
> the antenna can deliver Pdi * Aem watts to a conjugately matched load.
>
> Now let's connect this antenna to a second antenna with numerical power
> gain G2, and assume that the two are perfectly matched to each other. That
> is, the input impedance of the second antenna is the complex conjugate of
> the impedance the first antenna has when driven. Also assume no loss in
> the connecting line.
>
> The power delivered to the second antenna is then Pdi * Aem watts.
>
> The second antenna will radiate a field with power density equal to G2
> times that of an isotropic antenna supplied with the same power, or
>
> G2 * (Pdi * Aem) / (4 * pi * r^2)
>
> where r is the distance from the antenna in the direction in which the
> gain is measured.
>
> Combining these to find the ratio of power density of the field radiated
> from the second antenna to the power density of the field striking the
> first antenna, we get:
>

> P density ratio = G1 * G2 * (lambda / (4 * pi * r))^2
>
> This is the numerical gain you'll see between the field at the location of
> the first passive receiver antenna to the field at a distance r from the
> second (radiating) passive receiver antenna. A ratio of less than one
> represents attenuation rather than gain. The gain in dB is 10 * the base
> 10 logarithm of this ratio, with negative results representing
> attenuation. That is,
>
> Overall gain (dB) = 10 * log[base 10](P density ratio)
>
> Now let's look at a couple of examples. For simplicity, assume that none
> of the original field arrives at the detector location; that is, there's a
> perfect shield or obstruction between the original field and the detector
> (technically, the detector's antenna). It doesn't matter what kind of
> antenna is physically connected to the detector for this analysis. In real
> life, the detector would probably be a receiver, but I'll call it a
> detector so hopefully its antenna won't be confused for either of the two
> passive receiver's antennas.
>
> Let G1 = G2 = 10 -- both antennas comprising the passive repeater have 10
> dBi gain (although don't forget that G1 and G2 are numerical, not dB
> gains -- the two numbers just happen to be the same in the case of 10).
> Wavelength = 30 meters (10 MHz frequency), and r = 10 meters -- we've put
> the detector's antenna 10 meters from the second (radiating) passive
> repeater antenna(*).
>
> Working through the numbers, the power density at the detector's antenna
> is 5.7 times, or 7.56 dB greater than, the power density striking the
> first antenna. So the signal is stronger than it would have been if we'd
> put the detector's antenna right where the first passive repeater antenna
> is. Don't forget, though, that it took two 10 dBi antennas to get that
> 7.56 dB gain.
>
> But now let's look at the same setup but at 150 MHz (2 meter wavelength).
> The power density at the detector's antenna in this case is just 2.5% of
> (or 15.96 dB less than) the power density of the field striking the first
> antenna.
>
> In all cases, if we move the detector's antenna twice as close to the
> second (radiating) passive repeater antenna, that is, to 5 meters away,
> we'll gain 6 dB; if we double the distance to 20 meters we lose 6 dB.
> Before you say, "Aha! let's put the detector antenna 0.000001 meter from
> the passive repeater antenna and get incredible gain!" you have to realize
> that the antenna gain is achieved only in the far field, so you've got to
> keep a good part of a wavelength away for the rules to hold. Actually, 5
> meters is almost certainly too close for the gain to be valid at 10 MHz.
> The actual gain at any distance and field strength for a given input power
> could easily be determined for a particular antenna by modeling.
>

> Why does the wavelength make such a big difference? Well, think of the
> size of the field each antenna intercepts. Both the 10 MHz and 150 MHz
> antennas have the same gain, so the former is dimensionally 15 times
> larger than the latter, or 15^2 = 225 times the area. Consquently, the 10
> MHz antenna intercepts 225 times the power that the 150 MHz antenna
> does(**). 225 is exactly the ratio between the 10 and 150 MHz results of
> 5.7 and 0.025 (if carried out a few more places).
>
> If you know how much signal strength margin you have at the point where
> you put the first passive receiver antenna, you can use the equation above
> to calculate how much antenna gain you'll need for your passive repeaters
> and how close you'll have to put your receiver's antenna to the second
> (radiating) passive receiver antenna, or how to trade the two. Note that
> I've assumed perfect match and no loss. If, for example, there's loss in
> the transmission line between the two passive repeater antennas, that loss
> in dB will directly subtract from the overall passive repeater gain (or
> add to the overall passive repeater attenuation).
>
> (*) 10 meters is only 1/3 wavelengh so a bit close. The nominal antenna
> gain might not actually be realized at that short distance. But I'll
> assume it is.
>
> (**) Please don't infer from this that aperture has any obvious
> relationship to physical antenna area except in so-called "aperture
> antennas" such as horns or parabolic antennas which have large physical
> dimensions. The antennas under discussion have apertures proportional to
> their physical areas only because they're assumed to be physically
> identical except for a scaling factor. In general, antennas with widely
> different physical areas can have the same aperture, and antennas with the
> same physical area can have widely different apertures.
>
> Roy Lewallen, W7EL
This is way beyond me. Think I'll take up knitting. (if I can get the VSWR
right).

Regards Mike.

1221. Re: 160m antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 11:57:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uh2on3uhaf12d@corp.supernews.com>
Source record: 64582

Be careful when modeling antennas with offset feed. It's very difficult to prevent common mode current flow on the feedline of offset feed antennas. You might be able to keep the common mode current down to a reasonable level with a couple of good current baluns spaced about a quarter wavelength apart, but otherwise the feedline will be an important part of the antenna and needs to be included in the model. You'll have to include the whole conductive path to the Earth in order to get good accuracy, and this path might not be easy or possible to determine.

Roy Lewallen, W7EL

jimg wrote:
> Hi. I'm looking for more creative ideas. I live in a typical suburban
> setting. I have a 100' oak tree out back with a clear base of 65' on
> to one side; 75' to the other. I've EZNEC'd a variety of antennas from
> center fed (ladder line) inverted vee resonant at about 2.4MHz. Moved
> to offset fed versions which works over more bands but still not quite
> a low enough swr to load with a palstar balanced tuner on 160. Moved
> on to a 'triangle' antenna made by adding a wire base to the inverted
> vee about 2-' off the ground. Now I've got enough length, but the swr
> is squirrely on all abnds because of the interaction of the short legs
> (I guess it's a short delta with only the driven element.). So, it
> appears I'll have to wait until the kids graduate and a move to the
> countryside is in order.
> I know it won't work as well as a wavelength loop with a huge mesh
> metal fence counterpoise, but it would be nice to try and ragchew on
> 160m while the sunspot cycle is zilch. Any weird topologies come to
> mind? And still let me load up 80/40m?
> jimg
> Oregon
> USA

1222. Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 12:01:18 UTC
From: j.wetstein@gmail.com
Message-ID: <1139313678.316393.97290@z14g2000cwz.googlegroups.com>
Source record: 64583
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

My 1999 Toyota radio has just started acting strangly: the FM seems fine, but the AM radio is producing a wierd kind of static every time I drive over a bump. Even a little bump. The "static" sound is similar to the sound you hear when listening to AM during a storm and there is lightening nearby. It's quite annoying.

Is my radio going bad?
Is the antenna connection loose?
Could it have to do with static control (somehow) because of the winter weather?

Any advice?
Thanks!
j.wetstein@gmail.com

1223. Re: 160m antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 12:09:09 UTC
From: "Larry Gauthier (K8UT)" <MyCallsign@ARRL.NET>
Message-ID: <H50Gf.1$KY2.0@fe04.lga>
Source record: 64584

Jim,

Have you thought about going vertical? I'm lucky enough to have room for a 160m dipole, but also have created a shunt-fed 160m vertical from my existing tower. The vertical is barely adequate for "local" QSOs but outperforms the dipole beyond several hundred miles.

I also notice that Cushcraft has just released a commercial 160m shortened vertical (30-36 feet). I have not seen any reviews of this antenna yet -- and would generally prefer to build-it-myself -- but there may be some characteristics of the antenna that you could employ.

-larry
K8UT
"jimg" <jamesgor@verizon.net> wrote in message
news:uujgu1ps47o0olfio3qefelpla3irj7iqe@4ax.com...
> Hi. I'm looking for more creative ideas. I live in a typical suburban
> setting. I have a 100' oak tree out back with a clear base of 65' on
> to one side; 75' to the other. I've EZNEC'd a variety of antennas from
> center fed (ladder line) inverted vee resonant at about 2.4MHz. Moved
> to offset fed versions which works over more bands but still not quite
> a low enough swr to load with a palstar balanced tuner on 160. Moved
> on to a 'triangle' antenna made by adding a wire base to the inverted
> vee about 2-' off the ground. Now I've got enough length, but the swr
> is squirrely on all abnds because of the interaction of the short legs
> (I guess it's a short delta with only the driven element.). So, it
> appears I'll have to wait until the kids graduate and a move to the
> countryside is in order.
> I know it won't work as well as a wavelength loop with a huge mesh
> metal fence counterpoise, but it would be nice to try and ragchew on
> 160m while the sunspot cycle is zilch. Any weird topologies come to
> mind? And still let me load up 80/40m?
> jimg
> Oregon
> USA

1224. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 12:31:30 UTC
From: Gary Smith <mygrps@aapt.net.au>
Message-ID: <dsb825$k8t$1@news-01.bur.connect.com.au>
Source record: 64619
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

Sounds like a loose wire or something scraping metal on or near one section of the whole radio/antenna setup. if you grab a piece of wire and scratch it back and forth on the radio case (metal) you will get the same effect. Start looking for loose connections/case/wires under dash etc.

gary

<j.wetstein@gmail.com> wrote in message
news:1139313678.316393.97290@z14g2000cwz.googlegroups.com...
> My 1999 Toyota radio has just started acting strangly: the FM seems
> fine, but the AM radio is producing a wierd kind of static every time I
> drive over a bump. Even a little bump. The "static" sound is similar to
> the sound you hear when listening to AM during a storm and there is
> lightening nearby. It's quite annoying.
>
> Is my radio going bad?
> Is the antenna connection loose?
> Could it have to do with static control (somehow) because of the winter
> weather?
>
> Any advice?
> Thanks!
> j.wetstein@gmail.com
>

1225. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 12:37:56 UTC
From: byrnecut <steve531@bigpond.com.au>
Message-ID: <1139315876.825493.25740@o13g2000cwo.googlegroups.com>
Source record: 64585
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

check your antenna connection

1226. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 13:06:07 UTC
From: David <rickets@knac.com>
Message-ID: <0o6hu1drbftc1fq8reecsivg1eru1fdjth@4ax.com>
Source record: 64586
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

On 7 Feb 2006 04:01:18 -0800, j.wetstein@gmail.com wrote:

>My 1999 Toyota radio has just started acting strangly: the FM seems
>fine, but the AM radio is producing a wierd kind of static every time I
>drive over a bump. Even a little bump. The "static" sound is similar to
>the sound you hear when listening to AM during a storm and there is
>lightening nearby. It's quite annoying.
>
>Is my radio going bad?
>Is the antenna connection loose?
>Could it have to do with static control (somehow) because of the winter
>weather?
>
>Any advice?
>Thanks!
>j.wetstein@gmail.com
>

Any time 2 pieces of metal rub together they can create the radio
static you describe. Something's loose in your car and it's not
necessarily the wiring.

1227. unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 13:11:27 UTC
From: r31dmaeu@unibw.de
Message-ID: <1139317887.027250.80890@f14g2000cwb.googlegroups.com>
Source record: 64587

Please give me some suggestions about a device, which can/should
preferably remain online like a SWR meter, which shows the unbalance of
an antenna connected to the station via a balanced feeder.

1228. Behringer T1953 Tube Ultragain Mic AMP Processor

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 13:18:54 UTC
From: "Dr.Ace" <Webmaster@WH2T>
Message-ID: <ef531$43e89e23$4fc6476$2720@DIALUPUSA.NET>
Source record: 64588

FA:
Behringer T1953 Tube Ultragain Mic AMP Processor

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=7388531285&ssPageName=ADME:L:DS:US:8

1229. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 13:48:47 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <v2lmb3-o03.ln1@p400bob.personal.cox.net>
Source record: 64590

Tnxs Reg

> The angle of the 'horizontal' dipole relative to the horizontal,
> whether it is an inverted-V or not, makes negligible difference to the
> amount of noise it collects. It is non-critical in this respect.

1230. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 14:00:46 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <43e8a752_3@newsfeed.slurp.net>
Source record: 64589

"Reg Edwards" wrote
> Regardless of its noise properties, a quarter-wave and higher vertical
> radiates more low-angle power than a half-wave horizontal dipole.

That depends on its r-f ground. Horizontal plane radiation from a 1/4-wave vertical could be worse than the horizontal 1/2-wave dipole if all of the induced ground currents around the vertical aren't collected and returned to the tx/antenna system.

And verticals of some heights have zero radiation in the horizontal plane -- one wavelength, for example.

RF

1231. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 14:03:55 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <dvlmb3-323.ln1@p400bob.personal.cox.net>
Source record: 64591

Hi Dan

So I have the same GUI interface on both Windoze and Linux boxes

Do you know how to launch a *nix shell script from a wine based bat file?

Cheers Bob

Dan Andersson wrote:

> Emulating a NEC for Windooze in Linux?!
>
> Why are you not running a native NEC - compiled for Linux?

1232. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 14:08:39 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <0eahu1h9ptrq0c95maqn8cj6une95le0vn@4ax.com>
Source record: 64592

On 7 Feb 2006 05:11:27 -0800, r31dmaeu@unibw.de wrote:

>Please give me some suggestions about a device, which can/should
>preferably remain online like a SWR meter, which shows the unbalance of
>an antenna connected to the station via a balanced feeder.

A pair of match RF amp meters.

73,
Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1233. Re: 4nec2 and linux ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 14:52:21 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43E8B425.4050205@comcast.net>
Source record: 64593

Dan - Thanks. The 4nec2 package has a great editor and display front end. It is very easy to manage the nec interface. - Dan

Dan Andersson wrote:
> dansawyeror wrote:
>
>
>>All,
>>
>>I am trying to run 4nec2 under linux using wine. It loads and runs fine
>>until a bat file is engaged. The bat files are not supported under linux.
>>Is there a way to translate bat files to linux?
>>
>>Thanks - Dan
>
>
>
> Emulating a NEC for Windooze in Linux?!
>
> Why are you not running a native NEC - compiled for Linux?
>
> Try
>
> http://radio.linux.org.au/?sectpat=antenna&ordpat=title
>
>
> Cheers
>
>
> Dan / M0DFI

1234. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 14:53:55 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <jqchu1dehn35o7uui4um2ar0gi83ajkj86@4ax.com>
Source record: 64594

On 7 Feb 2006 05:11:27 -0800, r31dmaeu@unibw.de wrote:

>Please give me some suggestions about a device, which can/should
>preferably remain online like a SWR meter, which shows the unbalance of
>an antenna connected to the station via a balanced feeder.

MFJ recently began marketing a device that goes inline on a balanced
feedline; a couple of RF ammeters that show the current going through
each side of the line. see part mfj-835

bob
k5qwg

1235. Noisy Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 15:02:20 UTC
From: glenn.b.dixon@gmail.com
Message-ID: <1139323498.740521.243970@o13g2000cwo.googlegroups.com>
Source record: 64595

I just put up an offset fed dipole cut for 80 meters, up 40 feet, though the ends bend down a bit. It is fed with 40 feet of 177 ohm open wire twin lead, and a portion of the antenna goes over the top of my three-story house. At the feed end of the twin lead is a Guanella two-core 4:1 balun to sixty feet of RG-8U (actually, the better stuff--RG-216?) to the shack. The coax has a common-mode choke just before the tuner. The antenna tunes well on all bands 80 and above. The balun was tested to have less than 0.1 dB loss over HF and impedances from 25 to 100 ohms on the 50 ohm side.

Last night was the Spartan Sprint, a QRP CW contest that provided many weak signals suitable for evaluating the antenna. I tuned the contest in on 40 meters, and found a few stations calling, but S/N on all signals was never high enough to copy solid.

I then went to the ham radio room at our city building a block away, and listened to their late-model Kenwood on a G5RV up 30 feet. On the same frequency with an SSB bandwidth I received at least a dozen signals, solid copy on each.

I took the Kenwood (I have permission to do this) to my shack and hooked it up to my new antenna (without the tuner--the Kenwood has a matcher inside) with results somewhat between what the city antenna gave and what my own radio gave.

Now here's the rub: I'm willing to accept the idea that my antenna is noisier and needs work, but an experiment I did puzzles me: when I evaluated the Kenwood with my antenna I left the matcher on the settings it had for the G5RV antenna. As mentioned, I could hear stations better than with my radio, but not as well as the g5rv at the city building. The noise level (as measured on the Kenwood) was about s2 on the g5rv, and s5 at home. About five signals were copyable in the SSB bandwidth I had selected.

I then tuned the Kenwood to the dipole. It tuned successfully, and when I was done, the noise had gone to s9. This is not a surprise since the matcher has an effect on signal and noise strength. The surprise was that all signals instantly dropped below the noise, with only one signal that could even be heard. The radio's performance at this point matched my original evaluation with my ICOM and an external tuner matched to the antenna.

The engineer in me says that though tuner settings can affect how well signals and noise couple to the receiver, they should not affect overall S/N as long as we are within the dynamic range of the radio, but I definitely saw an effect. I finished the experiment by returning

to the city building and verifying the band was still active.

I think I know what might be happening and am designing an experiment to verify this, but would appreciate any speculation antenna experts may have. I doubt it is something like signal overload--rather, I think the antenna was really the culprit. Has anyone else seen this effect?

Thank you,
Glenn Dixon AC7ZN

1236. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 15:18:09 UTC
From: jgboyles@aol.com
Message-ID: <1139325489.747751.319310@g43g2000cwa.googlegroups.com>
Source record: 64596

r31dmaeu@unibw.de wrote:
> Please give me some suggestions about a device, which can/should
> preferably remain online like a SWR meter, which shows the unbalance of
> an antenna connected to the station via a balanced feeder.

To get a relative indication of unbalance on the feeder, run it thru
a toroidal core with a few turns of wire wound around for a secondary
winding. Recitify the secondary voltage, and read with a DC
voltmeter/microamp meter. If you don't have a toroid big enough to fit
around the feeder (likely if you are using >300 ohm line), it should be
ok to transition to smaller line for an inch or so to go through the
toroid.
You are wanting to read the balance of the antenna. The antenna by
itself can be completely balanced, but when you add the transmission
line, the antenna system can become quite unbalanced. The above
detector will give you a relative indication of feeder unbalance, which
I guess you really want to read.
Gary N4AST

1237. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:16:21 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsah4lqcr1@engnntp2.cig.mot.com>
Source record: 64602

Thanks for the tutorial. The only time I was (remotely) involved in a
similar set up was in some very early cell phone demos inside buildings
where the cell site was not very close. Two antennas were used, but two
sets of filters and amplifiers were used to get considerable power gain in
both directions. in/out of the demo room.
73, Steve, K9DCI

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11ugs6fc94rabf4@corp.supernews.com...
> I keep hearing about "passive repeaters", but haven't ever seen anything
> quantitative about how well they work. I had some measurements done
> years ago which showed that a cell phone "passive repeater" in a sedan
> doesn't do anything significant, quite obviously because the windows are
> such large apertures at that frequency.
>
> But here are some numbers to work with. Corrections are welcome.
>
> Assuming perfect efficiency, the maximum effective aperture of an
> antenna is Aem = G * lambda^2 / (4 * pi), where
>
> lambda = the wavelength
> G = the antenna's numerical power gain in the direction being analyzed
>
> The gain in dBi = 10 * log[base10](G). For convenience, use meters for
> length dimensions, so the aperture is in square meters and the
> wavelength is in meters.
>
> This means that if we have a field with power density Pdi striking an
> antenna with power gain G1 (in the direction the field is coming from),
> the antenna can deliver Pdi * Aem watts to a conjugately matched load.
>
> Now let's connect this antenna to a second antenna with numerical power
> gain G2, and assume that the two are perfectly matched to each other.
> That is, the input impedance of the second antenna is the complex
> conjugate of the impedance the first antenna has when driven. Also
> assume no loss in the connecting line.
>
> The power delivered to the second antenna is then Pdi * Aem watts.
>
> The second antenna will radiate a field with power density equal to G2
> times that of an isotropic antenna supplied with the same power, or
>
> G2 * (Pdi * Aem) / (4 * pi * r^2)
>

> where r is the distance from the antenna in the direction in which the
> gain is measured.
>
> Combining these to find the ratio of power density of the field radiated
> from the second antenna to the power density of the field striking the
> first antenna, we get:
>
> P density ratio = G1 * G2 * (lambda / (4 * pi * r))^2
>
> This is the numerical gain you'll see between the field at the location
> of the first passive receiver antenna to the field at a distance r from
> the second (radiating) passive receiver antenna. A ratio of less than
> one represents attenuation rather than gain. The gain in dB is 10 * the
> base 10 logarithm of this ratio, with negative results representing
> attenuation. That is,
>
> Overall gain (dB) = 10 * log[base 10](P density ratio)
>
> Now let's look at a couple of examples. For simplicity, assume that none
> of the original field arrives at the detector location; that is, there's
> a perfect shield or obstruction between the original field and the
> detector (technically, the detector's antenna). It doesn't matter what
> kind of antenna is physically connected to the detector for this
> analysis. In real life, the detector would probably be a receiver, but
> I'll call it a detector so hopefully its antenna won't be confused for
> either of the two passive receiver's antennas.
>
> Let G1 = G2 = 10 -- both antennas comprising the passive repeater have
> 10 dBi gain (although don't forget that G1 and G2 are numerical, not dB
> gains -- the two numbers just happen to be the same in the case of 10).
> Wavelength = 30 meters (10 MHz frequency), and r = 10 meters -- we've
> put the detector's antenna 10 meters from the second (radiating) passive
> repeater antenna(*).
>
> Working through the numbers, the power density at the detector's antenna
> is 5.7 times, or 7.56 dB greater than, the power density striking the
> first antenna. So the signal is stronger than it would have been if we'd
> put the detector's antenna right where the first passive repeater
> antenna is. Don't forget, though, that it took two 10 dBi antennas to
> get that 7.56 dB gain.
>
> But now let's look at the same setup but at 150 MHz (2 meter
> wavelength). The power density at the detector's antenna in this case is
> just 2.5% of (or 15.96 dB less than) the power density of the field
> striking the first antenna.
>
> In all cases, if we move the detector's antenna twice as close to the
> second (radiating) passive repeater antenna, that is, to 5 meters away,
> we'll gain 6 dB; if we double the distance to 20 meters we lose 6 dB.
> Before you say, "Aha! let's put the detector antenna 0.000001 meter from

> the passive repeater antenna and get incredible gain!" you have to
> realize that the antenna gain is achieved only in the far field, so
> you've got to keep a good part of a wavelength away for the rules to
> hold. Actually, 5 meters is almost certainly too close for the gain to
> be valid at 10 MHz. The actual gain at any distance and field strength
> for a given input power could easily be determined for a particular
> antenna by modeling.
>
> Why does the wavelength make such a big difference? Well, think of the
> size of the field each antenna intercepts. Both the 10 MHz and 150 MHz
> antennas have the same gain, so the former is dimensionally 15 times
> larger than the latter, or 15^2 = 225 times the area. Consquently, the
> 10 MHz antenna intercepts 225 times the power that the 150 MHz antenna
> does(**). 225 is exactly the ratio between the 10 and 150 MHz results of
> 5.7 and 0.025 (if carried out a few more places).
>
> If you know how much signal strength margin you have at the point where
> you put the first passive receiver antenna, you can use the equation
> above to calculate how much antenna gain you'll need for your passive
> repeaters and how close you'll have to put your receiver's antenna to
> the second (radiating) passive receiver antenna, or how to trade the
> two. Note that I've assumed perfect match and no loss. If, for example,
> there's loss in the transmission line between the two passive repeater
> antennas, that loss in dB will directly subtract from the overall
> passive repeater gain (or add to the overall passive repeater
attenuation).
>
> (*) 10 meters is only 1/3 wavelengh so a bit close. The nominal antenna
> gain might not actually be realized at that short distance. But I'll
> assume it is.
>
> (**) Please don't infer from this that aperture has any obvious
> relationship to physical antenna area except in so-called "aperture
> antennas" such as horns or parabolic antennas which have large physical
> dimensions. The antennas under discussion have apertures proportional to
> their physical areas only because they're assumed to be physically
> identical except for a scaling factor. In general, antennas with widely
> different physical areas can have the same aperture, and antennas with
> the same physical area can have widely different apertures.
>
> Roy Lewallen, W7EL

1238. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:20:02 UTC
From: chuck <nospam@nospam.net>
Message-ID: <SM3Gf.11997$rH5.6523@newsread2.news.atl.earthlink.net>
Source record: 64597

MFJ makes a $99 RF current meter (MFJ-854) which does this and provides
30 ma to 3 amp FS readings. They claim 1 ma is detectable. One
milliampere of unbalance is not worth talking about.

Gary's do-it-yourself suggestion is a good one. Easy to build and
interesting to calibrate. Of course, if the interest is only in
determining which of two alternatives creates the greater unbalance, the
DIY approach is hard to beat.

Both methods will probably require reducing line separation. The MFJ
accomodates only 1/2 inch in the clamp. Both methods also leave you with
an instrument useful in tracking down RFI problems.

Chuck NT3G

jgboyles@aol.com wrote:
> r31dmaeu@unibw.de wrote:
>
>>Please give me some suggestions about a device, which can/should
>>preferably remain online like a SWR meter, which shows the unbalance of
>>an antenna connected to the station via a balanced feeder.
>
>
> To get a relative indication of unbalance on the feeder, run it thru
> a toroidal core with a few turns of wire wound around for a secondary
> winding. Recitify the secondary voltage, and read with a DC
> voltmeter/microamp meter. If you don't have a toroid big enough to fit
> around the feeder (likely if you are using >300 ohm line), it should be
> ok to transition to smaller line for an inch or so to go through the
> toroid.
> You are wanting to read the balance of the antenna. The antenna by
> itself can be completely balanced, but when you add the transmission
> line, the antenna system can become quite unbalanced. The above
> detector will give you a relative indication of feeder unbalance, which
> I guess you really want to read.
> Gary N4AST
>

1239. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:26:14 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <5c10d$43e8ca49$97d56b99$14069@ALLTEL.NET>
Source record: 64598
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

Have you had your brakes worked on lately?

<j.wetstein@gmail.com> wrote in message
news:1139313678.316393.97290@z14g2000cwz.googlegroups.com...
> My 1999 Toyota radio has just started acting strangly: the FM seems
> fine, but the AM radio is producing a wierd kind of static every time I
> drive over a bump. Even a little bump. The "static" sound is similar to
> the sound you hear when listening to AM during a storm and there is
> lightening nearby. It's quite annoying.
>
> Is my radio going bad?
> Is the antenna connection loose?
> Could it have to do with static control (somehow) because of the winter
> weather?
>
> Any advice?
> Thanks!
> j.wetstein@gmail.com
>

1240. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:36:15 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <0tumb3-993.ln1@p400bob.personal.cox.net>
Source record: 64604

Hi Bryan

It appears as though we have woken some major discussion... Someone may even do the calculation for you!

The parabolic dish/grid "focuses" whatever power you start with. This means more power or a higher gain antenna will mean more signal at the far end. The result is additive. The power limitation is a legal one. I dont remember whether it is 1W (30dBm) or 4W (36dBm) EIRP for 802.11/2.4GHz. The term EIRP refers to the power of the focused beam as if it was the same level that would be obtained from a theoretical point source antenna. In simple terms if you take the 4W EIRP and subtract the antenna gain you will get the output maximum allowed at the transmitter. In your case this would be;

36dBm(EIRP) - 24dB(antgain) = 12dBm or about 8mW

Keep in mind that you also have to allow for cable loss between the transmitter and antenna. Numbers in the order of 6-12dB are not uncommon so you would have to subtract this as a system loss. A 6dB loss would bring your max transmitter power up to 18dBm or 32mW. Keep in mind that advertising can be confusing. A bigger number on an antenna brochure always seems better than a smaller one, but may be misleading. I dont quite understand you statement about the grid antenna being adjustable in power. (Also note cable loss affects the receiver too so you should try to minimise it)

These are pretty low levels and are unlikely to upset any passing birds! I wouldnt however sit in front of the dish for any extended length of time. I'm just paranoid though!

re joining the antennas, yes just join the pigtails exactly as you mentioned. Note others comments on the greater effectiveness of a billboard reflector though. I didnt mention this thinking you wanted to keep the visual effect small. I guess you could always disguise it as something else though!

The higher the gain of the passive devices the larger the signal that will be relayed. Higher gain means narrower or sharper directivity. The problem is to work out how much you actually need without just trying it and maybe failing. You could equally as well go for a couple of your 24dB grid antennas joined.

I should also mention that one of other major importances of a directive antenna is to reduce multipathing or the signal bouncing off objects to the side of the main path and getting to the antenna a little later than the main signal. This can cause problems and slow your link down, may

even make it unusable.

Oh and speaking of which did you try bouncing the signal off the house?

I dont see the antenna mounting (separation) on both sides of the
utility pole as being a problem.

Also checking. There is a max distance parameter that will need tweaking
in a 802.11 setup. Make sure that is set to 2km or so.

Cheers Bob

Bryan Martin wrote:
> The building location is maybe 500 feet away from where the repeater would
> be. The parabolic grid is maybe 3000-3500 feet away from the repeater
> location.

1241. Re: Verticals versus Horizontal Dipoles..OT

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:39:28 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsaig0rbq1@engnntp2.cig.mot.com>
Source record: 64605

//sympathy flag set//

Discussion of technical subjects between some hams can be frustrating to
listen to when you are accustomed to a lifetime of technical discussions and
experience with a sound understanding of the basics in the field. It is
indeed baffling to them, with all the seemingly black magic rules,
semi-truths and misconceptions they have heard over the years. Couple this
with one or two personal experiences which provide anecdotal "evidence" and
you can here some truly interesting interpretations. Some of it is amusing;
some is sad and some degrades to childish. A genuine interest is a jewel and
when someone expresses this, it is a joy to pass along the knowledge you
have gained over the years.

Roy,

While somewhat experienced in the field, I always enjoy your
knowledgeable and clear explanations. Some are informative, some are what I
already understand and some serve to affirm what I believe to be true based
on some related, but not direct experience. The latter is a joy as it
affirms that your (my) basics haven't failed you (me).

Thanks, Keep a stiff upper, and all that.

//sympathy flag cleared// (:-)

73, Steve, K9DCI

Hmmm. Interesting that MSoft Word wants to convert my smiley into some
obscure block character...sigh

and some of it is difficult to listen to without wanting to join-in and add
some correction.
"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11ugadllou7lsff@corp.supernews.com...
> Mike Coslo wrote:
> > Roy Lewallen wrote:
> >
> >>
> >> A step attenuator which is completely adequate for HF and can easily
> >> resolve 1 dB can be made from a few cheap slide switches, some PC
> >> board material, and a handful of ordinary 5% quarter watt resistors.
> >> Detailed instructions can be found in numerous sources, including the
> >> Web -- a Google search brought a large number of hits, the first of
> >> which was http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm afraid
> >> that this level of homebrewing is beyond the interest if not the
> >> ability of the majority of today's amateurs.
> >

> >
> > Got it - Thanks, Roy!
> >
> > - 73 de Mike KB3EIA -
>
> You're very welcome.
>
> The reason for my rather grumpy comment at the end is that I've
> recommended countless times for many years that people interested in
> evaluating antennas build a simple step attenuator -- an evening
> project. It allows you to make direct, quantitative comparisons between
> two antennas -- yours or someone else's, as well as calibrate your "S"
> meter. But to date, I've never gotten an iota of feedback that a single
> person has actually taken the trouble to build one. Rather, they
> continue to debate, ad nauseum and without any meaningful data, whether
> one antenna is better than the other, or at best quote differences in
> "S-units" read from their meters, without the foggiest idea how many dB
> it might represent or how different it is from someone else's meter (or
> from the same meter on a different band or a different part of the
> scale). The conclusion I've reached is that A) Hams would much rather
> argue than actually determine the facts, or B) The vast majority are
> unable to build a homebrew project consisting of slide switches, circuit
> board material, and resistors. I'm afraid both are probably true.
>
> Maybe you'll be the first to actually build one. If so, please drop me
> an email and let me know -- it'll make my day!
>
> Roy Lewallen, W7EL

1242. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:41:06 UTC
From: Christopher Thompson <kf4drr@alltel.net>
Message-ID: <d60f0$43e8cc34$d8602e79$15284@ALLTEL.NET>
Source record: 64599
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

ok the question about brakes is interesting...why ask that one in
particular?

--
-Chris
KF4DRR

"Fred W4JLE" <w4jle@w4jle.com> wrote in message
news:5c10d$43e8ca49$97d56b99$14069@ALLTEL.NET...
> Have you had your brakes worked on lately?
>
> <j.wetstein@gmail.com> wrote in message
> news:1139313678.316393.97290@z14g2000cwz.googlegroups.com...
> > My 1999 Toyota radio has just started acting strangly: the FM seems
> > fine, but the AM radio is producing a wierd kind of static every time I
> > drive over a bump. Even a little bump. The "static" sound is similar to
> > the sound you hear when listening to AM during a storm and there is
> > lightening nearby. It's quite annoying.
> >
> > Is my radio going bad?
> > Is the antenna connection loose?
> > Could it have to do with static control (somehow) because of the winter
> > weather?
> >
> > Any advice?
> > Thanks!
> > j.wetstein@gmail.com
> >
>
>

1243. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:43:38 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <hu2dnU35RcalU3XeRVn-pQ@comcast.com>
Source record: 64600
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

Christopher Thompson wrote:

> ok the question about brakes is interesting...why ask that one in
> particular?
>

Brake static discharge!! Brake dust can cause static also.

1244. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:43:59 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <62d9e$43e8ce72$97d56b99$16795@ALLTEL.NET>
Source record: 64601
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

Many times when rotors are changed or removed for machining the static spring is left out. Static electricity is built up on the tires and with no path to the body builds up until a bump is hit causing the wheel to bounce up, reducing the gap to the point discharge takes place.

"Christopher Thompson" <kf4drr@alltel.net> wrote in message news:d60f0$43e8cc34$d8602e79$15284@ALLTEL.NET...
> ok the question about brakes is interesting...why ask that one in
> particular?
>
> --
> -Chris
> KF4DRR
>
>
> "Fred W4JLE" <w4jle@w4jle.com> wrote in message
> news:5c10d$43e8ca49$97d56b99$14069@ALLTEL.NET...
> > Have you had your brakes worked on lately?
> >
> > <j.wetstein@gmail.com> wrote in message
> > news:1139313678.316393.97290@z14g2000cwz.googlegroups.com...
> > > My 1999 Toyota radio has just started acting strangly: the FM seems
> > > fine, but the AM radio is producing a wierd kind of static every time
I
> > > drive over a bump. Even a little bump. The "static" sound is similar
to
> > > the sound you hear when listening to AM during a storm and there is
> > > lightening nearby. It's quite annoying.
> > >
> > > Is my radio going bad?
> > > Is the antenna connection loose?
> > > Could it have to do with static control (somehow) because of the
winter
> > > weather?
> > >
> > > Any advice?
> > > Thanks!
> > > j.wetstein@gmail.com
> > >
> >
> >
>
>

1245. Re: Rocket Antennas...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:58:15 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsajj7$s6b$1@engnntp2.cig.mot.com>
Source record: 64606

<pbreed@netburner.com> wrote in message
news:9asfu1lrtksihlbhvl2ns6kk948apfg02l@4ax.com...
> I'm helping the SDSU mechanical engineering students with their Rocket.
> See: http://www-rohan.sdsu.edu/%7esharring/sdsurocket.html
>
> I've asked for help on this group before, but the response went over my
head.
> I a reasonably skilled EE, with ZERO antenna design experience.
> I would like to design an antenna that was conformal with the rocket main
tube.
> The rocket is about 8" in diameter and all metal.
> I need two antennas....
> I have two channels a 70cm ATV transmitter and a 900Mhz non-ham telemetry
radio.
>
> For the last attempt:
>
> Telemetry: I put two 1/4 wave verticals on opposite sides of the rocket
fed them with a minicircuits splitter.
> This worked well as I got data from lift off to impact.
>
> ATV Last attempt I just had a single 1/4 wave dipole sticking out one side
of the rocket.
> As the rocket rolled the signal faded in and out.
>
> The last time I asked this question I got a response that I could not use
because I did not understand it.
>
> So I'm looking for someone to help that can do the detail design.
>
> IE provide instructions build a tobe with this pattern on it, hook up coax
here and trim this spot to adjust SWR.
> I'm perfectly willing to get the fabrication done, but the design is
beyond me.
>
> I realize that I'm asking a lot, but any one that wants to help with the
antenna can have a
> front row seat in the block house to watch it launch, and some cool video
tape ;-)
> (The launch will be at the MTA near Mojave, CA)
>
> Paul (Kl7JG)

No takers, but it's only been a day... Antenna on a metal tube... sounds difficult. Body roll confounds the problem. Sounds like your experiments worked. What were the probs? Antenna drag and resulting instabilities?
I can only suggest searching on "patch antenna". Then there is a slot antenna, but fabricating this as part of the body without weakening the tube sounds equally difficult...and the dimensions may be all wrong to fit the antenna correctly.

If I shift into speculation mode, I'd think about an end-fed antenna which trails, but your "metal" rocket sounds as though the exhaust will be rather hostile compared to an Estes engine.

Reminds me of an idea I have always wanted to try on the small model rockets. Namely:
A on-board transponder for distance measurement. A 10 Meter one transistor FM receiver feeding a simple 2 meter 1-2 transistor FM, xtal controlled transmitter.
High power (100w if needed) 10 M mobile transmits a tone to rocket. Therefore airborne RX and 10M antenna need not be anything great. Rocket transponds tone on 2M FM. 2M antenna do-able on small rocket. Mobile receives tone. Black box (easy hardware) in mobile simply counts a reference freq from time of transmitted tone rising edge to received edge. Suitable accounting of internal delays and choice of reference frequency gives simple, direct readout in feet or whatever units desired. Calibrating the display horizontally on the ground is possible.

73, And good luck, Steve, K9DCI

1246. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 16:58:32 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <Yk4Gf.9987$2O6.8805@newssvr12.news.prodigy.com>
Source record: 64603

Roy Lewallen wrote:
> Mike Coslo wrote:
>
>> Roy Lewallen wrote:
>>
>>>
>>> A step attenuator which is completely adequate for HF and can easily
>>> resolve 1 dB can be made from a few cheap slide switches, some PC
>>> board material, and a handful of ordinary 5% quarter watt resistors.
>>> Detailed instructions can be found in numerous sources, including the
>>> Web -- a Google search brought a large number of hits, the first of
>>> which was http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm
>>> afraid that this level of homebrewing is beyond the interest if not
>>> the ability of the majority of today's amateurs.
>>
>>
>>
>> Got it - Thanks, Roy!
>>
>> - 73 de Mike KB3EIA -
>
>
> You're very welcome.
>
> The reason for my rather grumpy comment at the end is that I've
> recommended countless times for many years that people interested in
> evaluating antennas build a simple step attenuator -- an evening
> project. It allows you to make direct, quantitative comparisons between
> two antennas -- yours or someone else's, as well as calibrate your "S"
> meter. But to date, I've never gotten an iota of feedback that a single
> person has actually taken the trouble to build one. Rather, they
> continue to debate, ad nauseum and without any meaningful data, whether
> one antenna is better than the other, or at best quote differences in
> "S-units" read from their meters, without the foggiest idea how many dB
> it might represent or how different it is from someone else's meter (or
> from the same meter on a different band or a different part of the
> scale). The conclusion I've reached is that A) Hams would much rather
> argue than actually determine the facts, or B) The vast majority are
> unable to build a homebrew project consisting of slide switches, circuit
> board material, and resistors. I'm afraid both are probably true.
>
> Maybe you'll be the first to actually build one. If so, please drop me
> an email and let me know -- it'll make my day!
>

> Roy Lewallen, W7EL

I built one, on reading your advice, many moons ago. I'm glad I did.
Thanks, Roy.
73,
Tom Donaly, KA6RUH

1247. Re: Verticals versus Horizontal Dipoles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 17:51:29 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <dsamn2$il2$1@news.netins.net>
Source record: 64607

Hi Roy,

MFJ makes a nice 81 dB step attenuator for a very reasonable price (about $70.00 as I recall) for those who don't want to build. In either case (build or buy), one still has to know how to make good use of it, which to my experience is more demanding than either pocket book or soldering solutions.

There are a LOT of neat things one can do with a 2 position switch and a step attenuator. For one thing, a lot of myths can be summarily dismissed (after getting enough data points...another problem that gets lost in the shuffle). One simple measurement on anything sky-wave based is completely meaningless. Things like path-length, time of day, etc. need to be "washed out" or "isolated" in order to come to anything even resembling a meaningful conclusion, and one is likely to arrive and multipe conclusions based on the array of variables one investigates. A step attenuator is an absolute essential for anyone who plays with gain antennas or wants to compare antennas. If expense is an issue, you have provided a great solution, otherwise, the MFJ works rather well for not a lot of money.

73,

...hasan, N0AN

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11ugadllou7lsff@corp.supernews.com...
> Mike Coslo wrote:
>> Roy Lewallen wrote:
>>
>>>
>>> A step attenuator which is completely adequate for HF and can easily
>>> resolve 1 dB can be made from a few cheap slide switches, some PC board
>>> material, and a handful of ordinary 5% quarter watt resistors. Detailed
>>> instructions can be found in numerous sources, including the Web -- a
>>> Google search brought a large number of hits, the first of which was
>>> http://www.arrl.org/tis/info/pdf/9506033.pdf. But I'm afraid that this
>>> level of homebrewing is beyond the interest if not the ability of the
>>> majority of today's amateurs.
>>
>>
>> Got it - Thanks, Roy!
>>
>> - 73 de Mike KB3EIA -
>
> You're very welcome.
>
> The reason for my rather grumpy comment at the end is that I've

> recommended countless times for many years that people interested in
> evaluating antennas build a simple step attenuator -- an evening project.
> It allows you to make direct, quantitative comparisons between two
> antennas -- yours or someone else's, as well as calibrate your "S" meter.
> But to date, I've never gotten an iota of feedback that a single person
> has actually taken the trouble to build one. Rather, they continue to
> debate, ad nauseum and without any meaningful data, whether one antenna is
> better than the other, or at best quote differences in "S-units" read from
> their meters, without the foggiest idea how many dB it might represent or
> how different it is from someone else's meter (or from the same meter on a
> different band or a different part of the scale). The conclusion I've
> reached is that A) Hams would much rather argue than actually determine
> the facts, or B) The vast majority are unable to build a homebrew project
> consisting of slide switches, circuit board material, and resistors. I'm
> afraid both are probably true.
>
> Maybe you'll be the first to actually build one. If so, please drop me an
> email and let me know -- it'll make my day!
>
> Roy Lewallen, W7EL

1248. Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 19:40:57 UTC
From: chris <cpwendling@yahoo.com>
Message-ID: <1139341257.659885.24440@z14g2000cwz.googlegroups.com>
Source record: 64608

I've been thinking about springing for an MFJ (or other) antenna
analyzer
to check on the myriad antenna's I've got around the place.
I noticed that most of the analyzers on the market (like the MFJ-269,
for ~$350.00)
only go down to 1.8 MHz. I do a lot of work with xtal radio's
(DX'ing), and have a lot of different AM (MW) antenna's strewn about
the property. I was wondering why they cut that portion out of their
instrument? No demand? Too exotic?
Does anyone know if the analyzer could be modified (add some
inductance, etc. somewhere) to bring it down to about 500kc? Thanks!
Chris, AI4MI

1249. Re: Rocket Antennas...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 19:46:12 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <Goydnd8FweufZHXeRVn-pA@comcast.com>
Source record: 64609

SLOT ANTENNA is thew typical solution

Steve Nosko wrote:

> <pbreed@netburner.com> wrote in message
> news:9asfu1lrtksihlbhvl2ns6kk948apfg02l@4ax.com...
>
>>I'm helping the SDSU mechanical engineering students with their Rocket.
>>See: http://www-rohan.sdsu.edu/%7esharring/sdsurocket.html
>>
>>I've asked for help on this group before, but the response went over my
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> head.
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>>I a reasonably skilled EE, with ZERO antenna design experience.
>>I would like to design an antenna that was conformal with the rocket main
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> tube.
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>>The rocket is about 8" in diameter and all metal.
>>I need two antennas....
>>I have two channels a 70cm ATV transmitter and a 900Mhz non-ham telemetry
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> radio.
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>>For the last attempt:
>>
>>Telemetry: I put two 1/4 wave verticals on opposite sides of the rocket
>
> fed them with a minicircuits splitter.
>
>>This worked well as I got data from lift off to impact.
>>
>>ATV Last attempt I just had a single 1/4 wave dipole sticking out one side
>
> of the rocket.
>
>>As the rocket rolled the signal faded in and out.
>>
>>The last time I asked this question I got a response that I could not use
>
> because I did not understand it.
>
>>So I'm looking for someone to help that can do the detail design.
>>

>>IE provide instructions build a tobe with this pattern on it, hook up coax
>
> here and trim this spot to adjust SWR.
>
>>I'm perfectly willing to get the fabrication done, but the design is
>
> beyond me.
>
>>I realize that I'm asking a lot, but any one that wants to help with the
>
> antenna can have a
>
>>front row seat in the block house to watch it launch, and some cool video
>
> tape ;-)
>
>>(The launch will be at the MTA near Mojave, CA)
>>
>>Paul (Kl7JG)
>
>
>
> No takers, but it's only been a day... Antenna on a metal tube... sounds
> difficult. Body roll confounds the problem. Sounds like your experiments
> worked. What were the probs? Antenna drag and resulting instabilities?
> I can only suggest searching on "patch antenna". Then there is a slot
> antenna, but fabricating this as part of the body without weakening the tube
> sounds equally difficult...and the dimensions may be all wrong to fit the
> antenna correctly.
>
> If I shift into speculation mode, I'd think about an end-fed antenna which
> trails, but your "metal" rocket sounds as though the exhaust will be rather
> hostile compared to an Estes engine.
>
> Reminds me of an idea I have always wanted to try on the small model
> rockets. Namely:
> A on-board transponder for distance measurement. A 10 Meter one transistor
> FM receiver feeding a simple 2 meter 1-2 transistor FM, xtal controlled
> transmitter.
> High power (100w if needed) 10 M mobile transmits a tone to rocket.
> Therefore airborne RX and 10M antenna need not be anything great. Rocket
> transponds tone on 2M FM. 2M antenna do-able on small rocket. Mobile
> receives tone. Black box (easy hardware) in mobile simply counts a
> reference freq from time of transmitted tone rising edge to received edge.
> Suitable accounting of internal delays and choice of reference frequency
> gives simple, direct readout in feet or whatever units desired. Calibrating
> the display horizontally on the ground is possible.
>
> 73, And good luck, Steve, K9DCI
>

>

1250. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 20:05:59 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uhvdb83l5434f@corp.supernews.com>
Source record: 64610

jgboyles@aol.com wrote:
> r31dmaeu@unibw.de wrote:
>
>>Please give me some suggestions about a device, which can/should
>>preferably remain online like a SWR meter, which shows the unbalance of
>>an antenna connected to the station via a balanced feeder.
>
>
> To get a relative indication of unbalance on the feeder, run it thru
> a toroidal core with a few turns of wire wound around for a secondary
> winding. Recitify the secondary voltage, and read with a DC
> voltmeter/microamp meter. If you don't have a toroid big enough to fit
> around the feeder (likely if you are using >300 ohm line), it should be
> ok to transition to smaller line for an inch or so to go through the
> toroid.
> You are wanting to read the balance of the antenna. The antenna by
> itself can be completely balanced, but when you add the transmission
> line, the antenna system can become quite unbalanced. The above
> detector will give you a relative indication of feeder unbalance, which
> I guess you really want to read.
> Gary N4AST
>

This is the best method. Be sure to run both conductors through the core.

The core itself will act as something of a common mode choke (current balun) unless you terminate the winding in a fairly low resistance. Terminating it will reduce its effect on the line you're measuring. I typically use about 10 turns for the secondary with 51 ohms across it. That gives an insertion impedance of 51 / 100 = 0.51 ohm, which is negligible. I prefer to do this so my measuring device doesn't disturb what I'm measuring -- if I want a balun I do it separately. I suggest using a second core/winding on just one of the wires so you can compare the total wire current to the imbalance current. It's very important to terminate the one on the single wire, and if you want to use the two for comparison, you'll then also have to terminate the other. A high-permeability "low frequency" ferrite core is best for these, like Fair-Rite type 70 series (72, 73, 77, etc.). Type 43, a very common type used largely for EMI reduction, is also ok.

If you terminate the winding in about 50 ohms, you can put your sensor at a remote location and run 50 ohm coax between the core and detector/termination without disturbing the reading except for the coax loss.

I don't recommend two RF ammeters as some others have suggested. They only tell you amplitude and not phase. You can have some pretty seriously imbalanced currents and still see equal meter readings.

Roy Lewallen, W7EL

1251. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 20:31:08 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <T5bjCJfMOQ6DFAXS@ifwtech.co.uk>
Source record: 64611

Roy Lewallen wrote:
>jgboyles@aol.com wrote:
>> r31dmaeu@unibw.de wrote:
>>
>>>Please give me some suggestions about a device, which can/should
>>>preferably remain online like a SWR meter, which shows the unbalance of
>>>an antenna connected to the station via a balanced feeder.
>> To get a relative indication of unbalance on the feeder, run it
>>thru
>> a toroidal core with a few turns of wire wound around for a secondary
>> winding. Recitify the secondary voltage, and read with a DC
>> voltmeter/microamp meter. If you don't have a toroid big enough to fit
>> around the feeder (likely if you are using >300 ohm line), it should be
>> ok to transition to smaller line for an inch or so to go through the
>> toroid.
>> You are wanting to read the balance of the antenna. The antenna by
>> itself can be completely balanced, but when you add the transmission
>> line, the antenna system can become quite unbalanced. The above
>> detector will give you a relative indication of feeder unbalance, which
>> I guess you really want to read.
>> Gary N4AST
>>
>
>This is the best method. Be sure to run both conductors through the core.
>
>The core itself will act as something of a common mode choke (current
>balun) unless you terminate the winding in a fairly low resistance.
>Terminating it will reduce its effect on the line you're measuring. I
>typically use about 10 turns for the secondary with 51 ohms across it.
>That gives an insertion impedance of 51 / 100 = 0.51 ohm, which is
>negligible. I prefer to do this so my measuring device doesn't disturb
>what I'm measuring -- if I want a balun I do it separately. I suggest
>using a second core/winding on just one of the wires so you can compare
>the total wire current to the imbalance current. It's very important to
>terminate the one on the single wire, and if you want to use the two
>for comparison, you'll then also have to terminate the other. A
>high-permeability "low frequency" ferrite core is best for these, like
>Fair-Rite type 70 series (72, 73, 77, etc.). Type 43, a very common
>type used largely for EMI reduction, is also ok.
>
>If you terminate the winding in about 50 ohms, you can put your sensor
>at a remote location and run 50 ohm coax between the core and
>detector/termination without disturbing the reading except for the coax
>loss.

>
>I don't recommend two RF ammeters as some others have suggested. They
>only tell you amplitude and not phase. You can have some pretty
>seriously imbalanced currents and still see equal meter readings.

Another option would be to make two identical transformers, one for each wire, and connect both secondaries to the same terminating resistor. Reversing one of the secondaries gives true vector addition or subtraction of the two currents, and then you can detect and measure the resultant in the normal way.

Out-of-phase connection of the two secondaries indicates the differential line current, or the in-phase connection gives the common-mode current (hopefully much smaller).

I think that should work...

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1252. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 20:42:18 UTC
From: tclay@qmc.ph.msstate.edu
Message-ID: <87zml2c34l.fsf@qmc.ph.msstate.edu>
Source record: 64613

>instrument? No demand? Too exotic?
>Does anyone know if the analyzer could be modified (add some
>inductance, etc. somewhere) to bring it down to about 500kc? Thanks!

Another thing to think about: most of the analyzers around are pretty much useless on low freqs anyway due to interference from AM broadcast signals.

I recently finished shunt feeding my tower for 160m, and found that my AEA CIA analyzer was completely useless trying to measure the feed impedance. In the end I just used a regular swr meter to adjust the shunt feed. I don't remember exactly how low the AEA goes, but it is below 1.8 MHz.

Tor
N4OGW/5

1253. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 20:47:34 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <59vhu1lkpgu46u9dd8p8tg4mg66h8l2ojn@4ax.com>
Source record: 64612

On 7 Feb 2006 11:40:57 -0800, "chris" <cpwendling@yahoo.com> wrote:

>I've been thinking about springing for an MFJ (or other) antenna
>analyzer
>to check on the myriad antenna's I've got around the place.
>I noticed that most of the analyzers on the market (like the MFJ-269,
>for ~$350.00)
>only go down to 1.8 MHz. I do a lot of work with xtal radio's
>(DX'ing), and have a lot of different AM (MW) antenna's strewn about
>the property. I was wondering why they cut that portion out of their
>instrument? No demand? Too exotic?
>Does anyone know if the analyzer could be modified (add some
>inductance, etc. somewhere) to bring it down to about 500kc? Thanks!
>Chris, AI4MI

If you are not adverse to building (I don't know why a ham would be)
look at the N2PK network analyzer. www.n2pk.com

1254. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 21:43:19 UTC
From: F4DRH <F4DRH@wanadoo.fr>
Message-ID: <43e91475$0$29208$8fcfb975@news.wanadoo.fr>
Source record: 64614

You can see an exemple here:

"> A pair of match RF amp meters.
>
> 73,
> Danny
>

You can see an example here:
http://www.barbaxoops.com/modules/xcgal/displayimage.php?pid=47&album=7&pos=1

Regards

Jean-Marc
F4DRH
www.barbaxoops.com

1255. Re: Hi Q TAD Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 21:50:24 UTC
From: me <tuskyone@yahoo.com.au>
Message-ID: <dsb4nf$8m$1@news-02.connect.com.au>
Source record: 64615

Must be at least ONE Hi Q 4/160 TAD in service somewhere to get a comment..

"me" <tuskyone(remove)@yahoo.com.au> wrote in message
news:ds3hd3$p8h$1@news-02.connect.com.au...
> Hi I need to hear any comments in rgds the performance of the HI Q TAD
> 4/160 (Tune a dipole)
> quality, performance, anything really, ease of tuning, etc etc
>
> rgds
>
>

1256. Re: unbalance indicator

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 22:30:15 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11ui7rrkkcm093a@corp.supernews.com>
Source record: 64616

Ian White GM3SEK wrote:
>
> Another option would be to make two identical transformers, one for each
> wire, and connect both secondaries to the same terminating resistor.
> Reversing one of the secondaries gives true vector addition or
> subtraction of the two currents, and then you can detect and measure the
> resultant in the normal way.
>
> Out-of-phase connection of the two secondaries indicates the
> differential line current, or the in-phase connection gives the
> common-mode current (hopefully much smaller).
>
> I think that should work...
>

Excellent idea. But be sure to use a fairly low value of terminating resistor for this and any time you run just one of the conductors through the core. Otherwise you'll be putting a significant impedance in series with your feedline conductor, causing mismatch and/or loss. The insertion impedance, that is, the effective series impedance of the core, will be Rt / N^2, where Rt is the terminating resistor connected across the secondary winding and N is the number of secondary turns. Lower values of terminating resistor will reduce the detector's sensitivity, but this won't be a problem at moderate or even quite low power levels.

Roy Lewallen, W7EL

1257. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 22:35:28 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11ui85kbv5qt22a@corp.supernews.com>
Source record: 64617

tclay@qmc.ph.msstate.edu wrote:
> Another thing to think about: most of the analyzers around are pretty
> much useless on low freqs anyway due to interference from AM broadcast
> signals.
>
> I recently finished shunt feeding my tower for 160m, and found that
> my AEA CIA analyzer was completely useless trying to measure the feed
> impedance. In the end I just used a regular swr meter to adjust the
> shunt feed. I don't remember exactly how low the AEA goes, but it is
> below 1.8 MHz.
>
> Tor
> N4OGW/5

Yes, it's ironic that the one thing "antenna analyzers" are pretty useless for, in an urban environment at least, is analyzing antennas.

Some time back I mentioned how a "half wave filter" could be used to reduce out-of-band signals without disturbing the measurement too much. The postings should be possible to locate at groups.google.com. Please read all postings, because I recall incorrectly saying that the filter could be used at frequencies lower (for a lowpass) or higher (for a highpass) frequency than the design frequency. I later corrected that. A given filter is good over only about one HF band without significant disturbance of the measurement.

Roy Lewallen, W7EL

1258. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-07 22:36:01 UTC
From: Jack O'Neill <tokras@optonline.net>
Message-ID: <6h9Gf.12173$tq.2745@fe10.lga>
Source record: 64618
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

j.wetstein@gmail.com wrote:

>My 1999 Toyota radio has just started acting strangly: the FM seems
>fine, but the AM radio is producing a wierd kind of static every time I
>drive over a bump. Even a little bump. The "static" sound is similar to
>the sound you hear when listening to AM during a storm and there is
>lightening nearby. It's quite annoying.
>
>Is my radio going bad?
>Is the antenna connection loose?
>Could it have to do with static control (somehow) because of the winter
>weather?
>
>Any advice?
>Thanks!
>j.wetstein@gmail.com
>
>
>
check the antenna connections. This happened to me a while ago.
73

1259. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 01:48:07 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <OuGdnQtxyaBM0HTeSa8jmw@karoo.co.uk>
Source record: 64620

chris wrote:

> I've been thinking about springing for an MFJ (or other) antenna
> analyzer
> to check on the myriad antenna's I've got around the place.
> I noticed that most of the analyzers on the market (like the MFJ-269,
> for ~$350.00)
> only go down to 1.8 MHz. I do a lot of work with xtal radio's
> (DX'ing), and have a lot of different AM (MW) antenna's strewn about
> the property. I was wondering why they cut that portion out of their
> instrument? No demand? Too exotic?
> Does anyone know if the analyzer could be modified (add some
> inductance, etc. somewhere) to bring it down to about 500kc? Thanks!
> Chris, AI4MI

Don't panic!

There is an Italian analyzer, 0-60MHz for about 150€ (180 US $) which is based on the AD9851 from analog devices.

You need a computer so it's not a handheld.

It's a "half VNA", giving +/- 90 degrees phase info but that is normally not a problem as it's easy to find out the sign anyway.

A new version is coming soon and covers 0.1 Hz to 160 MHz. I think I saw a price of 240€ on that one.

The TenTec TAPR VNA, 0-100 MHz is a "real" VNA with full quadrature 360 degree phase info.

However, you do still need a computer.

Cheers

Dan / M0DFI

1260. Re: Noisy Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 02:24:34 UTC
From: John Passaneau <w3jxp@adelphia.net>
Message-ID: <e8edncr-ldv5y3TeRVn-oA@adelphia.com>
Source record: 64621

I think one problem is that your feeding it with open wire line. An off set feed dipole is in no way a balanced load. This means the feedline is an active part of the antenna and is picking up noise. Feed that way it's what I guess they call a Carolina Windom where the feedline is used to give a bit of vertical polarization to the antenna. In a G5RV the open wire line is supposed to be a matching section on 20m and a bit of feedline on the other bands and as its center feed the feedline is not supposed to be a active part of the antenna.

--
John Passaneau W3JXP
State College Pa.
w3jxp@adelphia.net

<glenn.b.dixon@gmail.com> wrote in message
news:1139323498.740521.243970@o13g2000cwo.googlegroups.com...
>I just put up an offset fed dipole cut for 80 meters, up 40 feet,
> though the ends bend down a bit. It is fed with 40 feet of 177 ohm
> open wire twin lead, and a portion of the antenna goes over the top of
> my three-story house. At the feed end of the twin lead is a Guanella
> two-core 4:1 balun to sixty feet of RG-8U (actually, the better
> stuff--RG-216?) to the shack. The coax has a common-mode choke just
> before the tuner. The antenna tunes well on all bands 80 and above.
> The balun was tested to have less than 0.1 dB loss over HF and
> impedances from 25 to 100 ohms on the 50 ohm side.
>
> Last night was the Spartan Sprint, a QRP CW contest that provided many
> weak signals suitable for evaluating the antenna. I tuned the contest
> in on 40 meters, and found a few stations calling, but S/N on all
> signals was never high enough to copy solid.
>
> I then went to the ham radio room at our city building a block away,
> and listened to their late-model Kenwood on a G5RV up 30 feet. On the
> same frequency with an SSB bandwidth I received at least a dozen
> signals, solid copy on each.
>
> I took the Kenwood (I have permission to do this) to my shack and
> hooked it up to my new antenna (without the tuner--the Kenwood has a
> matcher inside) with results somewhat between what the city antenna
> gave and what my own radio gave.
>
> Now here's the rub: I'm willing to accept the idea that my antenna is
> noisier and needs work, but an experiment I did puzzles me: when I
> evaluated the Kenwood with my antenna I left the matcher on the
> settings it had for the G5RV antenna. As mentioned, I could hear

> stations better than with my radio, but not as well as the g5rv at the
> city building. The noise level (as measured on the Kenwood) was about
> s2 on the g5rv, and s5 at home. About five signals were copyable in
> the SSB bandwidth I had selected.
>
> I then tuned the Kenwood to the dipole. It tuned successfully, and
> when I was done, the noise had gone to s9. This is not a surprise
> since the matcher has an effect on signal and noise strength. The
> surprise was that all signals instantly dropped below the noise, with
> only one signal that could even be heard. The radio's performance at
> this point matched my original evaluation with my ICOM and an external
> tuner matched to the antenna.
>
> The engineer in me says that though tuner settings can affect how well
> signals and noise couple to the receiver, they should not affect
> overall S/N as long as we are within the dynamic range of the radio,
> but I definitely saw an effect. I finished the experiment by returning
> to the city building and verifying the band was still active.
>
> I think I know what might be happening and am designing an experiment
> to verify this, but would appreciate any speculation antenna experts
> may have. I doubt it is something like signal overload--rather, I
> think the antenna was really the culprit. Has anyone else seen this
> effect?
>
> Thank you,
> Glenn Dixon AC7ZN
>

1261. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 03:07:48 UTC
From: rgawtry@timewave.com
Message-ID: <11uio45s728gga4@corp.supernews.com>
Source record: 64622

In article <1139341257.659885.24440@z14g2000cwz.googlegroups.com>, "chris"
<cpwendling@yahoo.com> wrote:
>I've been thinking about springing for an MFJ (or other) antenna
>analyzer
>to check on the myriad antenna's I've got around the place.
>I noticed that most of the analyzers on the market (like the MFJ-269,
>for ~$350.00)
>only go down to 1.8 MHz. I do a lot of work with xtal radio's
>(DX'ing), and have a lot of different AM (MW) antenna's strewn about
>the property. I was wondering why they cut that portion out of their
>instrument? No demand? Too exotic?
>Does anyone know if the analyzer could be modified (add some
>inductance, etc. somewhere) to bring it down to about 500kc? Thanks!
>Chris, AI4MI
>

take a look at:
http://www.timewave.com/TZ-900.html

Randy, K0CBH
Timewave

1262. Re: Great Job Board

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 03:09:54 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <s6oiu1tus9qp40rb6531gcg0968igj82rj@4ax.com>
Source record: 64623

On 07 Feb 2006 10:29:32 GMT, ema32@msn.com wrote:

>There is a great job board located at the employment section of
>http://www.4charlesson.com . So pass it on to anyone looking for a job.

Yeah, a great board:
>>An unknown error has occurred.
looks like it needs someone for a job

1263. Re: Antenna analyzer- no MW?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 06:15:10 UTC
From: sailtamarack@yahoo.ca
Message-ID: <1139379310.735592.13280@g47g2000cwa.googlegroups.com>
Source record: 64624

Chris,

The problem with low cost analyzers is that they use broadband detector diodes. Strong local AM radio stations will cause an output from these diodes and generate erroneus results. In fact, MFJ suggests a highpass filter before the instrument in order to alleviate this problem (in areas with strong local AM stations). MFJ discusses this issue in the MFJ-259B manual which is a free download @ http://www.mfjenterprises.com/manuals.php.

However, a German ham has modified his unit for operation from 40 kHz to 1.8 mHz. This is not a trivial mod and it is described on page 88 of his manual @ http://www.darc.de/distrikte/f/27/MFJ259B_SWR584B_Handbuch1v4.pdf

Unfortunately it is all in German so you will have to use Google to translate the appropriate sections. BTW - this is the most comprehensive user manual for this analyzer available anywhere. Includes testing, calibration, schematic diagram, numerous mods, operating tips and techniques, and how to build accessories.

Hope this helps - Roger

1264. 4nec2 on Windows-XP ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 11:19:04 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1139397544.853779.192670@g43g2000cwa.googlegroups.com>
Source record: 64625

Hello...,

I would very much like to hear about users who did or did not succeed running the latest 4nec2 version (5.6.0) on windows-XP.

This because some now and then I get 'strange' problem-reports for problems which I am not able to reproduce on the XP systems I have overhere. I would very much like to tackle this problem, so any information about this is very welcome.

Thanks in advance,
Arie.

1265. folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 11:48:23 UTC
From: gianluca <9a6nfg@hamradio.hr>
Message-ID: <dsclq6ies1@bagan.srce.hr>
Source record: 64526

hy to all ! where can i find a link with the plan how to make a folded dipol
for 80 meter band my problem is not to much place on my roof, thank you 73
9a6nfg JN65TC Luca

1266. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 13:46:00 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <sCmGf.29915$H43.28660@trnddc08>
Source record: 64527

"gianluca" <9a6nfg@hamradio.hr> wrote in message
news:dsclq6ies1@bagan.srce.hr...
> hy to all ! where can i find a link with the plan how to make a folded
> dipol for 80 meter band my problem is not to much place on my roof, thank
> you 73 9a6nfg JN65TC Luca
>
>A folded dipole is the same length as a classic wire dipole. The folded
>term relates to the two parallel conductors not the overall length..

Dale W4OP

1267. Re: adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 18:03:00 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1139421780.751543.223150@g43g2000cwa.googlegroups.com>
Source record: 64528

O.K. then.....I'm doing it! I figure that tommorrow I will add
65ft MORE to each end. Currently,the "sides" are 70ft. per side.
the thing "OF ISSUE" here IS that this antenna is a "linear-loaded"
dipole of 140ft. total,across the top. Each section IS 210ft of
wire in a "folded" condition. I need to get to that 260ft or so feet
long across the top. I'll let you guys know how this works out.
I bet thaat adding this wire will affect the ladderline length.
Paladin ps-I want this antenna to be BEST on 160m phone

1268. Re: Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 19:44:26 UTC
From: chuck <nospam@nospam.net>
Message-ID: <uSrGf.15713$vU2.12294@newsread3.news.atl.earthlink.net>
Source record: 64529

Peak current of 100,000 A for 1 microsecond in wire with resistance of
(say) one ohm gives energy of 10,000 Joule.

If the wire is No. 12, that would warm it up pretty well, but vaporize?

Where have I gone astray?

TIA

Chuck

1269. Re: Lightning Arrestor Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-08 20:54:24 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <LYednQqa4-7gx3feRVn-qg@comcast.com>
Source record: 64530

chuck wrote:

> Peak current of 100,000 A for 1 microsecond in wire with resistance of
> (say) one ohm gives energy of 10,000 Joule.
>
> If the wire is No. 12, that would warm it up pretty well, but vaporize?
>
> Where have I gone astray?
>
> TIA
>
> Chuck

So far, correct. But, that 10,000 J equates to 1E16
[100,000,000,000,000,000] watts peak power.

There is a thermal shock wave that occurs in the wire. There is a
transient magnetic wave in the wire.

The failure mechanism has been empirically correlated to peak power
times [pulse width^1/2].

The wire, or portions of it goes away!!

1270. FA: Book: SPREAD SPECTRUM SYSTEMS: An Advanced Electronics/Math Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 01:50:51 UTC
From: Paul <paul@pljoijwfoka.com>
Message-ID: <080220062050515585%paul@pljoijwfoka.com>
Source record: 64531
Cross-posted to:
alt.ham-radio.marketplace,rec.radio.amateur.antenna,rec.radio.amateur.equipment,misc.industry.electronics.marketplace

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=4611984617

1271. Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 14:17:26 UTC
From: Jeff Dieterle <jdieter@nospam.carlnet.org>
Message-ID: <10cd5$43eb4ef3$424980b2$32629@COMTECK.COM>
Source record: 64532

I drive the same route everyday. On the same 1.5 mile section I get a very loud buzz and on top of the buzz a higher pitched periodic hum lasting for 10 seconds and occurring every 30 seconds overpowering everything on the low end of the am band. There is a 3-phase distribution line along the road, would a failing insulator create this type of problem, I thought that would be more localized than covering a 1.5 mile stretch. Along this 1.5 miles I travel 3 different directions and the intensity doesn't change much and it doesn't make any difference what time of night or day. Near one end of this area, there is a transmission tower of some type. The tower has been there long before cell phone towers started sprouting like weeds, also it doesn't have the dish array near the top just a straight tower, probably 15' sq. at the base and 75' tall.

Is the person or company responsible for creating this type of interference obligated to correct the cause?

1272. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 17:09:54 UTC
From: richardharrison@webtv.net
Message-ID: <22778-43EB7762-218@storefull-3258.bay.webtv.net>
Source record: 64533

Dale, W4OP wrote:
"A folded dipole is the same length as a classic wire dipole. The folded term relates to two parallel conductors not the overall length."

true. A 1/2-wave folded dipole has the same radiation pattern as a straight dipole. Its feedpoint resistance is higher, depending on the number of conductors in the dipole and their relative sizes. Another difference is more significant. The folded dipole is also resonant when it has two wires and it is only 1/4-wave long. It is resonant because its circumference is then 1/2 wavelength.

The feedpoint resistance of the resonant 1/4-wave long center-fed folded dipole made from the same diameter wire all the way around is 6000 ohms. Special matching may be needed, However, gain is only 1/2-dB less than a 1/2-wave dipole and its radiation pattern is almost the same. Its bandwidth is only 5% of its center frequency while the bandwidth of the 1/2-wave folded dipole is 45% of its center frequency. Bandwidth of the thin single-wire center-fed dipole is 34%.

Arnold B. Bailey is the source of this information in "TV and Other Receiving Antennas".

Best regards, Richard Harrison, KB5WZI

1273. Re: adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 17:35:45 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1139506545.341377.270850@f14g2000cwb.googlegroups.com>
Source record: 64534

Doc, WHAT are "fractals" ? I can't believe that you said that
either........;-(How does even that word help me ? Paladin

1274. Re: Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 17:59:15 UTC
From: richardharrison@webtv.net
Message-ID: <22778-43EB82F3-225@storefull-3258.bay.webtv.net>
Source record: 64535

Jeff Dieterle wrote:
"Is the person or company responsible for creating this type of interference obliged to correct the cause?"

Maybe. I doubt that leaky insulator noise generates the interference described. It would not likely last for only 10 seconds with a 30-second repetition rate.

Such an interference with different duration and repetition from Jeff`s used to plague my company at Houma, Louisiana. Our offshore division for the Gulf of Mexico was stationed at the Houma Airport. It turned out to be caused by the U.S. Government`s radar. Every time it swept our way, it broke the noise-squelch we used on our FM receivers, giving them a click and a buzz. We all wanted to fly safely so we never complained.

Best regards, Richard Harrison, KB5WZI

1275. demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 19:30:35 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1139513435.028624.39500@g43g2000cwa.googlegroups.com>
Source record: 64536

Good morn',

What is the difference between a demodulator and a detector? I was reading the datasheet and I noticed a block diagram that says FM detector and another diagram that says FM demodulator.

Thanks!

1276. Re: Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 19:30:36 UTC
From: dplatt@radagast.org
Message-ID: <11un62s35hpkk9c@corp.supernews.com>
Source record: 64537

In article <10cd5$43eb4ef3$424980b2$32629@COMTECK.COM>,
Jeff Dieterle <jdieter@nospam.carlnet.org> wrote:

>Is the person or company responsible for creating this type of interference
>obligated to correct the cause?

It depends.

If they're radiating RF in excess of FCC part 15 limits, and do not
have a license to transmit in whatever frequency band they are using,
then they're very probably obligated to fix the problem or to shut
down whatever equipment is radiating.

If they're transmitting in a frequency band / allocation for which
they have a proper license, and if their transmission isn't leaking
spurious frequencies in excess of the FCC limits, then they're
probably quite legal. In this situation, what you'd hearing would be
considered to be "undesired reception" - that is, your car radio is
being overwhelmed by a strong signal outside of its normal passband -
and the FCC would consider this the fault of your radio.

Without doing some spectrum analysis and direction finding it's hard
to distinguish the two from the symptoms you report.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1277. Re: demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 19:32:08 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <w6idnYoztNU3BXbeRVn-rg@web-ster.com>
Source record: 64538

Ron J wrote:

> Good morn',
>
> What is the difference between a demodulator and a detector? I was
> reading the datasheet and I noticed a block diagram that says FM
> detector and another diagram that says FM demodulator.
>
> Thanks!
>
Mostly terminology. Either is more or less accurate.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

1278. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 20:29:23 UTC
From: richardharrison@webtv.net
Message-ID: <7814-43EBA623-210@storefull-3257.bay.webtv.net>
Source record: 64539

Hal Rosser wrote:
"(one acts like a receiver, and the other acts like a transmitter.)"

Back-to-back antennas both act like transmitters. Neither cares if its energy came from radiation sweeping it or fed to it from its feedline.

The most energy any antenna can extract from a passing wave is 50%. That is only when the receiving antenna is perfectly matched to its load. In this case the load is an identical antenna, so the chances for a match are good. But, at least 50% of the energy captured by the receiving antenna is going to be reradiated by that antenna right back in the direction it came from.

Another problem is the rapid decline with distance in the first wavelength from the antenna. It losses 22 dB in field strength in the first wavelength from the transmitting antenna. After traveling through a second wavelength from the antenna (distance doubled from the antenna) the field strength declines by another 6 dB. It loses 6 dB every time the distance doubles. So, after 4 wavelengths, total loss will be 34 dB.

At great distances form the transmitting antenna, double the distance is such a great distance that the field strength hardly varies at all even when traveling directly toward or away from the transmitter.

It is obvious that path loss is a function of frequency and distance if only from continuous expansion of the sphere of the electromagnetic wavefront. There are less watts per square meter when the watts are the same but the number of square meters is growing. Our initial loss distance was determined by wavelength which is inversely related to the frequency.

Best regards, Richard Harrison, KB5WZI

1279. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 22:19:44 UTC
From: Steve Silverwood <kb6ojs@arrl.net>
Message-ID: <MPG.1e554be43a3876ac9896d8@news-server.socal.rr.com>
Source record: 64540

In article <184c4$43c1dc66$42a1bfc2$11376@FUSE.NET>, jawod@fuse.net
says...
> The G5RV antenna can be found by googling. Anyone using this
> arrangement. It uses a coax feed to balanced feed (which variously acts
> as radiating elements, depending on the band). The author says a balun
> is not needed but then describes an RF choke that sounds a lot like a
> balun. I am also concerned about TVI with this system.

I've been using a "shorty" version of the G5RV (not the full length
version, due to space limitations -- mine is capable of operating on 40-
10 meters) with moderate success, even at QRP power levels. Rig is an
FT-817 with no amplifier, so max power is five watts, often quite a bit
lower.

--

-- //Steve//

Steve Silverwood, KB6OJS
Fountain Valley, CA
Email: kb6ojs@arrl.net

1280. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 23:07:32 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uniplf3lgjd4f@corp.supernews.com>
Source record: 64541

Richard Harrison wrote:
> . . .
> The most energy any antenna can extract from a passing wave is 50%. That
> is only when the receiving antenna is perfectly matched to its load. In
> this case the load is an identical antenna, so the chances for a match
> are good. But, at least 50% of the energy captured by the receiving
> antenna is going to be reradiated by that antenna right back in the
> direction it came from.
> . . .

This is a bit misleading. Typically, an antenna extracts only a tiny fraction of the energy from a passing wave. The actual amount of energy it does extract is expressed as its "capture area" or "effective aperture". A recent posting I made includes a way to calculate this if you know the antenna's gain. Because the "capture area" is usually a tiny fraction of the wave's total area, only a tiny fraction of the wave's energy is extracted.

Roy Lewallen, W7EL

1281. Re: 4nec2 on Windows-XP ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 23:24:32 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <QaQGf.4$W31.2@edtnps90>
Source record: 64542

Arie, I have done some preliminary tests with 4nec2 on Windows-XP. I have not noticed any particular problems so far, apart from the fragmentation of the GH card -- as also noted by Dan. I would like to run NEC 4 on your software, but cannot seem to find any reference to "4nec4" on the website.

I tend to have a bias towards GNEC, but I particularly like your Smith Chart graphic. Whatever, I am sure the graphics are easily better than the basic NEC 4.

Frank

"Arie" <4nec2@gmx.net> wrote in message
news:1139397544.853779.192670@g43g2000cwa.googlegroups.com...
> Hello...,
>
> I would very much like to hear about users who did or did not succeed
> running the latest 4nec2 version (5.6.0) on windows-XP.
>
> This because some now and then I get 'strange' problem-reports for
> problems which I am not able to reproduce on the XP systems I have
> overhere. I would very much like to tackle this problem, so any
> information about this is very welcome.
>
> Thanks in advance,
> Arie.
>

1282. ZM30 analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 23:29:22 UTC
From: PA3HGT <tiswathe@blabla.com>
Message-ID: <4521ifF4l1njU1@individual.net>
Source record: 64543

Hello,

I purchased a Palstar ZM30 antenna-analyzer recently and i want to measure a trap of W3DZZ dipool (Fritzel W3-2000).
I want to measure resonance of the trap , i know the trap is 100% ok and i disassembled from the antenna.
I did trying it by the book but no succes !
Has anyone some experience with this analyzer to measure such things ?

--
Met vriendelijke groet,

Hans Pluijgers
Hamcall: PA3HGT
www.pa3hgt.nl

1283. Re: Any experience with the G5RV multiband wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-09 23:46:31 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dsgk8n$sp9$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64544

There's more nonsense, old wives tales and gobbledegook generated by
THAT antenna than all other antennas put together.

Just erect the longest and highest dipole you have space for and feed
it with 450-ohm open-wire line all the way to the shack. If you don't
have a balanced tuner, use an unbalanced tuner with a choke balun. An
unbalanced tuner will probably be better anyway.

To lengthen a dipole make an inverted-U. Or make a Z with it.

Reg.

1284. Re: Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 00:32:54 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <hlnnu198uf8inn2g455qk8jonm3i6drcrm@4ax.com>
Source record: 64545

On Thu, 09 Feb 2006 19:30:36 -0000, dplatt@radagast.org (Dave Platt)
wrote:

>In article <10cd5$43eb4ef3$424980b2$32629@COMTECK.COM>,
>Jeff Dieterle <jdieter@nospam.carlnet.org> wrote:
>
>>Is the person or company responsible for creating this type of interference
>>obligated to correct the cause?
>
>It depends.
>
>If they're radiating RF in excess of FCC part 15 limits, and do not
>have a license to transmit in whatever frequency band they are using,
>then they're very probably obligated to fix the problem or to shut
>down whatever equipment is radiating.

Though if they call it BPL, they will probably get a free ride!

Owen
--

1285. Re: Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 00:58:43 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <v0pnu1tltmo6tn2ca1ghnook33aqrb453s@4ax.com>
Source record: 64546

On Fri, 10 Feb 2006 00:32:54 GMT, Owen Duffy <owen@no.where> wrote:

>Though if they call it BPL, they will probably get a free ride!

>>lasting for 10 seconds and occurring every 30 seconds

Hi Owen,

Then that BPL service has a through-put of 2b/Minute or T-0.00000001?

73's
Richard Clark, KB7QHC

1286. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 00:59:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <yzRGf.10606$2O6.9463@newssvr12.news.prodigy.com>
Source record: 64547

Richard Harrison wrote:
> The folded dipole is also resonant when
> it has two wires and it is only 1/4-wave long. It is resonant because
> its circumference is then 1/2 wavelength.
> The feedpoint resistance of the resonant 1/4-wave long center-fed folded
> dipole made from the same diameter wire all the way around is 6000 ohms.

Richard, that doesn't make sense to me. Such an antenna could be fed
with 1/4WL of 600 ohm open-wire line and achieve an impedance of 60
ohms looking into the matching section. That's just too good to be true.

I just ran an 80m folded dipole on 160m using EZNEC. It says the
feedpoint impedance is 32+j1900 ohms. That's a long way from
resonance and 6000 ohms.
--
73, Cecil http://www.qsl.net/w5dxp

1287. Re: ZM30 analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 01:53:55 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43EBF233.2080403@comcast.net>
Source record: 64548

I am not familiar with this antenna. Is this a pass filter? If so it will not have a resonant frequency. It will have a cut off point. The tool for that would be a spectrum analyzer and a tracking generator.

PA3HGT wrote:
> Hello,
>
> I purchased a Palstar ZM30 antenna-analyzer recently and i want to measure a
> trap of W3DZZ dipool (Fritzel W3-2000).
> I want to measure resonance of the trap , i know the trap is 100% ok and i
> disassembled from the antenna.
> I did trying it by the book but no succes !
> Has anyone some experience with this analyzer to measure such things ?
>
>
>

1288. Re: More info on old Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 04:29:29 UTC
From: David Thompson <thompson@mindspring.com>
Message-ID: <JEUGf.8980$Nv2.8902@newsread1.news.atl.earthlink.net>
Source record: 64549

Chris,

I can't see the drawing but Wilson made several models of self supporting
tubular masts. These are now sold by US Tower as the MA-40, 55, and 70.
They have a rotating base option.
Dave K4JRB

"Chris W" <1qazse4@cox.net> wrote in message
news:jBYDf.9$8D6.1@dukeread11...
> I have acquired an old tower. I was told the brand is Wilson but I
> can't seem to find any information on it. I have photos and I 3D model
> I drew here....
> http://cdw.homelinux.com:8087/stuff/Tower/
>
> If some one could tell me where I can find specs on it and what kind of
> wind load it can handle, I would be grateful.
>
> Note you have to down load this free program to view the 3D model
>
> http://www.alibre.com/products/addons/modelpress.asp
>
> --
> Chris W
> KE5GIX
>
> Gift Giving Made Easy
> Get the gifts you want &
> give the gifts they want
> One stop wish list for any gift,
> from anywhere, for any occasion!
> http://thewishzone.com

1289. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 05:08:57 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <_aVGf.2059$UD1.320@bignews2.bellsouth.net>
Source record: 64550
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

>
> Is my radio going bad?
> Is the antenna connection loose?
> Could it have to do with static control (somehow) because of the winter
> weather?
>
> Any advice?
> Thanks!
> j.wetstein@gmail.com

When my car radio had that problem, I FINALLY fixed it by running an extra wire from the negative side of the battery to the car's body. It was hard to trace an intermittent ground. I gave the ole multimeter a good workout that day.

1290. Re: 4nec2 on Windows-XP ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 08:55:38 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1139561738.747121.231300@f14g2000cwb.googlegroups.com>
Source record: 64551

> I have not noticed any particular problems so far, apart from the > fragmentation of the GH card
> ...
> cannot seem to find any reference to "4nec4" on the website.

Yes that's correct. 4nec2 (for nec too...) does 'understand' both nec2 and nec4 in- and output-files.To switch from Nec2 to Nec4 use 'Settings->Nec engine->Nec4*.exe'.
However the interface between 4nec2 and Nec4*.exe is a bit more primitive compared to the Nec2 interface. This because of the unability of input-file redirection for the average Windows-based Nec4 compilations.

> I tend to have a bias towards GNEC

Ah, no problem at all. Choose what you like best !

Thanks for the feedback,

Arie.,

1291. Re: ZM30 analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 10:47:22 UTC
From: PA3HGT <tiswathe@blabla.com>
Message-ID: <45399mF46dqfU1@individual.net>
Source record: 64552

The trap is a coil and a capacitor in parrallel.
The antenna is for 40 and 80 meters and the trap works in the 40 mtr band.
From the feedingpoint to the trap is 2 times 10 mtrs (for 40 mtr) and then
some 7 mtrs for 80mtrs.
When you work on 40 , the antenna works only from the feedingpoint to the
trap because the circuit "cut" the antenna so you work then with 2 times 10
mtrs.
The manual says that traps can be measured,i tried by manual but no luck.

--
Met vriendelijke groet,

Hans Pluijgers
Hamcall: PA3HGT
www.pa3hgt.nl

>I am not familiar with this antenna. Is this a pass
> filter? If so it will not have a resonant frequency. It
> will have a cut off point. The tool for that would be a
> spectrum analyzer and a tracking generator.
>
>
> PA3HGT wrote:
>> Hello,
>>
>> I purchased a Palstar ZM30 antenna-analyzer recently and
>> i want to measure a trap of W3DZZ dipool (Fritzel
>> W3-2000). I want to measure resonance of the trap , i know the
>> trap is 100% ok and i disassembled from the antenna.
>> I did trying it by the book but no succes !
>> Has anyone some experience with this analyzer to measure
>> such things ?

1292. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 13:52:11 UTC
From: Christopher Thompson <kf4drr@alltel.net>
Message-ID: <91015$43ec991b$d8602e79$2545@ALLTEL.NET>
Source record: 64553
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

that raises a good question. had there been any engine work where they may
have inadvertantly left the ground strap from the body to the engine off or
loose? keep in mind as posted below the body is grounded to the engine
block, and the battery neg goes to the engine block.

--
-Chris
KF4DRR

"Hal Rosser" <hmrosser@bellsouth.net> wrote in message
news:_aVGf.2059$UD1.320@bignews2.bellsouth.net...
> >
> > Is my radio going bad?
> > Is the antenna connection loose?
> > Could it have to do with static control (somehow) because of the winter
> > weather?
> >
> > Any advice?
> > Thanks!
> > j.wetstein@gmail.com
>
> When my car radio had that problem, I FINALLY fixed it by running an extra
> wire from the negative side of the battery to the car's body. It was hard
to
> trace an intermittent ground. I gave the ole multimeter a good workout
that
> day.
>
>
>

1293. Re: Passive Repeater

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 14:03:17 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11up75b1jd998de@corp.supernews.com>
Source record: 64554

An example of what Richard is saying is found when listening to a none-too-strong FM broadcast station: if a big airplane flies into the path near either end of the path, one will notice significant vector addition of signals (heard as flutter).

Billboard (reflector) type passive reflectors have several applications. One is to place the reflector on a high edge of a ridge that is not accessible part of the year (or that does not have electric power) so as to facilitate propagation along a valley.

"Passive Repeater" is used in about three ways: (1) large reflector; (2) back to back connected, gain antennas; and (3) back to back connected antennas with filter and gain blocks in the connection (sometimes, bi-directional).

73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Richard Harrison" <richardharrison@webtv.net> wrote in message
news:7443-43E80747-546@storefull-3257.bay.webtv.net...
> Bryan Martin wrote:
> "Was this supposed to help or was it just a slam?"
>
> No, my response was factual, neumeric, and specific. It was not meant as
> a slam. Reflectors are less lossy than back-to-back antennas. If you are
> using microwaves, the size of the reflector may be practical.
>
> The peflector in the path is most effective when placed near either end
> of the path. The reflector can also produce gain over that produced by
> the antennas at the path ends. It must be slightly concave to do so.
> Commercial reflectors often come equipped with an adjustment to suck in
> the center of the reflector for maximum gain once alignment of the
> dishes is accomplished. This isn`t speculation. I`ve designed the paths
> and performed the adjustments with my own hands.
>
> Best regatds, Richard Harrison, KB5WZI
>

1294. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 14:10:12 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11up7id72jhuv5b@corp.supernews.com>
Source record: 64555

I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that is
just right for most tasks. It is also a good anti-galling material to use
when screwing SS to anything.

73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"John Popelish" <jpopelish@rica.net> wrote in message
news:GaKdnbJSoIPeqHveRVn-hQ@adelphia.com...
> Joe S. wrote:
> (snip)
> > I have found a source of anti-oxidant grease that's used on electrical
> > connections and I will put this stuff on the connector-mount junction to
> > prevent further oxidation. Here's the question: Do I loosen the nut
and
> > put grease between the nut and the antenna mount -- similar to putting
> > thermal grease between a heat sink and the surface of a transistor --
or, do
> > I tighten the nut and smear grease on the outside, not on the mating
> > surfaces? I suspect I should put the grease on the mating surfaces
between
> > the nut and the mount -- loosen the nut, smear on grease, tighten the
nut.
>
> The anytioxidant has to be in intimate contact with the metal surfaces
> before they are clamped together. Here is a site that tells how to
> use one version, Penetrox-A. The details are about 1/4 of the way down:
> http://www.inspect-ny.com/aluminum/alreduce.htm#1A

1295. Re: More info on old Tower

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 14:30:04 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <ik7pu1537tsuki9h49gs11j7pes4p1134c@4ax.com>
Source record: 64556

This is not one of the Wilson MA series. I have the CT-70 that I
bought about 1979. The top section failed in a twisting mode back in
the mid 80's. I have kept up with maintenance and it is currently
installed on a free standing fixture with an electric boat winch to
raise & lower it. It spends most of the time at about 30 feet where it
is very robust even with a Cushcraft A3S installed.

On the list of things to do is the matter of a power tilt winch. I am
not as robust as I once was!

BTW, it was about $450 when I bought it.

On Fri, 10 Feb 2006 04:29:29 GMT, "David Thompson"
<thompson@mindspring.com> wrote:

>Chris,
>
>I can't see the drawing but Wilson made several models of self supporting
>tubular masts. These are now sold by US Tower as the MA-40, 55, and 70.
>They have a rotating base option.
>Dave K4JRB
>
>"Chris W" <1qazse4@cox.net> wrote in message
>news:jBYDf.9$8D6.1@dukeread11...
>> I have acquired an old tower. I was told the brand is Wilson but I
>> can't seem to find any information on it. I have photos and I 3D model
>> I drew here....
>> http://cdw.homelinux.com:8087/stuff/Tower/
>>
>> If some one could tell me where I can find specs on it and what kind of
>> wind load it can handle, I would be grateful.
>>
>> Note you have to down load this free program to view the 3D model
>>
>> http://www.alibre.com/products/addons/modelpress.asp
>>
>> --
>> Chris W
>> KE5GIX
>>
>> Gift Giving Made Easy
>> Get the gifts you want &
>> give the gifts they want
>> One stop wish list for any gift,
>> from anywhere, for any occasion!

>> http://thewishzone.com
>
John Ferrell W8CCW

1296. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 15:52:17 UTC
From: richardharrison@webtv.net
Message-ID: <7289-43ECB6B1-96@storefull-3251.bay.webtv.net>
Source record: 64558

Cecil, W5DXP wrote:
"Such an antenna could be fed with 1/4 WL of 600 ohm open wire line and achieve an impedance of 60 ohms looking into the matching section."

Exactly.

The actual impedance of the 1/4-wave folded dipole is an inverse function of the wire diameter. It can be chosen to present 6000 ohms. Arnold B. Bailey has studied the behavior, developed the formulas, and published graphs for the user to choose wire sizes for folded dipoles of either 1/4-wave or 1/2-wave overall length. He does a sample calculation and showes his work for one particular 1/4-wave folded dipole.

On page 414 of "TV and Other Receiving Antennas" Bailey writes:
"At first resonance (where the total wire length is 1/2-wave and overall length is 1/4-wave), the current in the continuous rod (entire wire length) approaches a constant value, varying from a maximum in the center (farthest from the drivepoint) to about 0.7 of maximum at the ends. For this reason the radiation resistance RR approaches the value for a constant-current rod. The practical value is approximately RR=570(l squared), where l is the nominal over-all length and equals 0,25 wavelength, thus resulting in a value of 35.6 ohms."

The 1/4-wave folded dipole shares some of the characteristics of a short-circuited stub. It is a resonant circuit element which converts the low impedance at its short-circuit into a high impedance at its feedpoint.

If the 1/4-wave folded dipole is a little short of 1/2-wave around its perimeter, it presents an inductive reactance. If a little longer electrically than 1/2-wave around, it presents a capacitive reactance.

Best regards, Richard Harrison, KB5WZI

1297. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 15:53:06 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <CF2Hf.548024$084.539297@attbi_s22>
Source record: 64557

Another product that works very well is Lawson 59933 Copper Anti-Seize Anti-Corrosion Compound
http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
This is the same product that comes with a Butternut vertical antenna. It consists of a synthetic grease base, copper, thickener, and rust inhibitor. It can withstand temperature ranges from -65&#65533;F to 1800&#65533;F, which should be adequate for most ham applications.

John, N9JG

"J. Mc Laughlin" <jcm@power-net.net> wrote in message news:11up7id72jhuv5b@corp.supernews.com...
>I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that is
> just right for most tasks. It is also a good anti-galling material to use
> when screwing SS to anything.

1298. Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 18:30:15 UTC
From: ceaser <ceaserone@gmail.com>
Message-ID: <1139596215.876386.165400@g44g2000cwa.googlegroups.com>
Source record: 64559

I have gotten a GE 40 channel handheld CB is there anything I can do to this that would go beyoind the normal operating range? thanks

1299. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 19:13:07 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <LO-dnWj36K5eeHHenZ2dnUVZ_tudnZ2d@comcast.com>
Source record: 64560

ceaser wrote:

> I have gotten a GE 40 channel handheld CB is there anything I can do to
> this that would go beyoind the normal operating range? thanks
>

Well, 40 channels should just be fine!

15 watts SSB should just be fine!

If you want more, get a ham license and be legal. It is illegal to
operate outside the 40 channels and have more that 15 watts.

1300. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 19:15:29 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <lD5Hf.11596$2O6.7044@newssvr12.news.prodigy.com>
Source record: 64561

"ceaser" <ceaserone@gmail.com> wrote in message
news:1139596215.876386.165400@g44g2000cwa.googlegroups.com...
>I have gotten a GE 40 channel handheld CB is there anything I can do to
> this that would go beyoind the normal operating range? thanks

The only legal method would be a good directional (beam) antenna on a high
tower.

Harold

1301. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 19:29:50 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <f66vb3-ncb.ln1@p400bob.personal.cox.net>
Source record: 64563

Legally?

A bigger/higher antenna.. Many handlhelds have places to plug in an
external antenna.

Stand on a hill top to use it. <grin>

Cheers Bob

ceaser wrote:
>
> I have gotten a GE 40 channel handheld CB is there anything I can do to
> this that would go beyoind the normal operating range? thanks
>

1302. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 19:45:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <i36Hf.46654$dW3.19692@newssvr21.news.prodigy.com>
Source record: 64562

Richard Harrison wrote:
> The actual impedance of the 1/4-wave folded dipole is an inverse
> function of the wire diameter. It can be chosen to present 6000 ohms.
> If the 1/4-wave folded dipole is a little short of 1/2-wave around its
> perimeter, it presents an inductive reactance. If a little longer
> electrically than 1/2-wave around, it presents a capacitive reactance.

Using EZNEC, I just did a frequency sweep on a #14 folded dipole
around half its design frequency. There were no apparent resonant
effects. How big does the wire have to be for a 130ft folded dipole
to exhibit a feedpoint impedance of 6000 + j0 ohms on 160m? Why is
no one using such an antenna on 160m?
--
73, Cecil http://www.qsl.net/w5dxp

1303. help appreciated with unusual j pole feed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 20:33:48 UTC
From: kevin <khorseman@lineone.net>
Message-ID: <dsitdnopv1@news8.svr.pol.co.uk>
Source record: 64564

hi there, i'm looking for some help with a j pole antenna, it's actually a vhf marine antenna so i hope it will be ok to ask here.

my problem is that this antenna used be atop the mast of my yacht untill it blew off breaking the end fitting and pulling free of the coax, because these things are quite expensive and don't seem to last that long, I decided to try repair it as a spare.

It fits inside a fibreglass tube, so I carefully cut through the tube and pulled out the antenna parts, which are all intact.

my plan was to solder some coax to it and put it back in the tube, then glass the tube back together, but this is where i ran into trouble, i'm unsure where to afix the coax.

the antenna i believe is a j antenna, with a 3/4 wave leg and a somewhat less than a 1/4 wave leg returning from the base, however there is no connections on this stub part where the coax has been connected, i had expected there would be.

There is, however, 2 pins below the 2 upright legs, these are not electically connected to the upright stub elements, (the 2 upright elements are joined across the bottom). These 2 pins have a length of insulated wire attached to them which stretches over and parallel to the uprights of the stub. The 2 pins are staggered in height which means 1 side of this insulated wire run is approx 75 mm and the other side is approx 70 mm, it runs like an inverted v up the stub from these pins at the base.

I'm assuming that the coax should also be soldered to these 2 pins and interacts with the antenna through induction or something. If this is correct does it matter which side of the coax goes to which pin, neither of them are conneced to anything other than each other through the insulated wire, which as i've said, runs above what i beleive to be the antenna stub section.

or should the coax be connected at the top of the stub, (a halfwave from the top), i can't see any sign that the coax was previously fixed there, but then there is no sign that it was previously connected anywhere for that matter

hope this makes sense and someone is able advise, thanks for looking and if you can help thanks again.

if this all sounds like nonesense, i may be able to put a picture as an attachment but i'm unsure whether it is acceptable in this group.

kevin

1304. Re: folded dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 20:59:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11upvks27ah9c2@corp.supernews.com>
Source record: 64565

You should realize that this antenna is much narrower banded than a half wave dipole. Using a transmission line matching section with such a high transformation would probably narrow it further.

The folded dipole described by Bailey (his data sheet 10-10) can be easily modeled with EZNEC or a similar program. A transmission line matching section can be included in the model if desired.

Roy Lewallen, W7EL

Richard Harrison wrote:
> Cecil, W5DXP wrote:
> "Such an antenna could be fed with 1/4 WL of 600 ohm open wire line and
> achieve an impedance of 60 ohms looking into the matching section."
>
> Exactly.
>
> The actual impedance of the 1/4-wave folded dipole is an inverse
> function of the wire diameter. It can be chosen to present 6000 ohms.
> Arnold B. Bailey has studied the behavior, developed the formulas, and
> published graphs for the user to choose wire sizes for folded dipoles of
> either 1/4-wave or 1/2-wave overall length. He does a sample calculation
> and showes his work for one particular 1/4-wave folded dipole.
>
> On page 414 of "TV and Other Receiving Antennas" Bailey writes:
> "At first resonance (where the total wire length is 1/2-wave and overall
> length is 1/4-wave), the current in the continuous rod (entire wire
> length) approaches a constant value, varying from a maximum in the
> center (farthest from the drivepoint) to about 0.7 of maximum at the
> ends. For this reason the radiation resistance RR approaches the value
> for a constant-current rod. The practical value is approximately
> RR=570(l squared), where l is the nominal over-all length and equals
> 0,25 wavelength, thus resulting in a value of 35.6 ohms."
>
> The 1/4-wave folded dipole shares some of the characteristics of a
> short-circuited stub. It is a resonant circuit element which converts
> the low impedance at its short-circuit into a high impedance at its
> feedpoint.
>
> If the 1/4-wave folded dipole is a little short of 1/2-wave around its
> perimeter, it presents an inductive reactance. If a little longer
> electrically than 1/2-wave around, it presents a capacitive reactance.
>
> Best regards, Richard Harrison, KB5WZI
>

1305. Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 21:09:28 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <kpOdneE04tafnHDeRVn-tg@comcast.com>
Source record: 64566

Hello:

Dumb question, I know, but just can't find a good pix and callout on the web. Some of the ones I did find don't even agree.

For a length of coax with a connector on each end:

The Male UHF is PL-259 let's say.

But on the other end, for a Female of the same connector type/series, is it called a:

PL-258 ?
or just a PL259 Female ?
or... ?

What's the correct designation for the Female ?

Know any good links showing the correct designation and a pix of ?

Thanks,
B.

1306. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 21:25:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <qx7Hf.31452$H71.4516@newssvr13.news.prodigy.com>
Source record: 64567

Robert11 wrote:
> But on the other end, for a Female of the same connector type/series, is it
> called a:
>
> PL-258 ?
> or just a PL259 Female ?
> or... ?
>
> What's the correct designation for the Female ?

Uhhh Robert, a female is a socket, not a plug. :-)
If I remember right, the mating socket is an SO-239.
--
73, Cecil http://www.qsl.net/w5dxp

1307. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 22:29:50 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <pc4qu1d148k175kgl9l752ihs33dl80p02@4ax.com>
Source record: 64568

On Fri, 10 Feb 2006 16:09:28 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>Dumb question, I know, but just can't find a good pix and callout on the
>web. Some of the ones I did find don't even agree.
>
>For a length of coax with a connector on each end:
>
>The Male UHF is PL-259 let's say.
>
>But on the other end, for a Female of the same connector type/series, is it
>called a:
>
>PL-258 ?
>or just a PL259 Female ?
>or... ?
>
>What's the correct designation for the Female ?
>

IIRC, PL-259 was a part number specific to a (so called) UHF male
connector (plug) for RG8 size coax and with a particular braid anchor
scheme. More recently, the term seems to be used to describe any UHF
male connector for any sized cable.

S0-239 was the part number for a specific panel mounting UHF female
connector (socket) with a solder pin for centre conductor connection.
Again, the term seems commonly adapted to any female UHF connector.

Perhaps the better generic terms are UHF Male and UHF Female, but it
seems people like the more technical sounding PL-259 etc. When we talk
of BNC series connectors or N type connectors, we don't usually use a
specific part number as the designator for the whole series... but
that seems the common practice for UHF connectors.

Owen

--

1308. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 22:42:02 UTC
From: Dave <noone@nowhere.com>
Message-ID: <vLednfBczdNZi3DeRVn-iQ@crocker.com>
Source record: 64569

most of the time you just put pl-259's on both ends since you are going to plug into a device that has an so-239 socket on it. if you need an extension cable you mate two pl-259's with a barrel connector, sometimes known as a pl-258.

"Robert11" <rgsros@notme.com> wrote in message
news:kpOdneE04tafnHDeRVn-tg@comcast.com...
> Hello:
>
> Dumb question, I know, but just can't find a good pix and callout on the
> web. Some of the ones I did find don't even agree.
>
> For a length of coax with a connector on each end:
>
> The Male UHF is PL-259 let's say.
>
> But on the other end, for a Female of the same connector type/series, is
> it called a:
>
> PL-258 ?
> or just a PL259 Female ?
> or... ?
>
> What's the correct designation for the Female ?
>
> Know any good links showing the correct designation and a pix of ?
>
> Thanks,
> B.
>

1309. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 22:49:03 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrnduq62v.1j93.bit-bucket@shell.config.com>
Source record: 64570

In rec.radio.amateur.antenna, you wrote:
>
> Dumb question, I know, but just can't find a good pix and callout on
> the web. Some of the ones I did find don't even agree.
> For a length of coax with a connector on each end:
> The Male UHF is PL-259 let's say.
> But on the other end, for a Female of the same connector type/series,
> is it called a:
>
> PL-258 ?
> or just a PL259 Female ?
> or... ?
>
> What's the correct designation for the Female ?

Your gonna love this.

It's an SO-239.

Of course, there's the chassis mount, the cable attach, the
female-to-female feed-through, and more varieties.

Standards ARE GREAT!
And, there are sooooo many to choose from!

Anyway, it's "SO" for SOcket, and "PL" for PLug.
The PL-255 is the ol' venerable 1/4", mono audio plug.

Jonesy W3DHJ
--
Marvin L Jones | jonz | W3DHJ | linux
38.24N 104.55W | @ config.com | Jonesy | OS/2
*** Killfiling google posts: <http//jonz.net/ng.htm>

1310. db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 23:46:13 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <CO2dnTNEFaEiuHDeRVn-oQ@comcast.com>
Source record: 64571

Hello:

When a table gives the attenuation (at some freq.) for a length of a
particular coax in db,
are they referring to db in voltage or db in power ?

Is is correct to ask a question as simply as the following:

If the attenuation is given as, e.g., 2 db, what Percentage therefore of a
received signal is "lost"
going thru the coax length ?

Thanks,
Bob

1311. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-10 23:57:21 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <2k9qu1pvdacf5houedrb1s6i6e1c5n6p6u@4ax.com>
Source record: 64572

On Fri, 10 Feb 2006 18:46:13 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>When a table gives the attenuation (at some freq.) for a length of a
>particular coax in db,
>are they referring to db in voltage or db in power ?
>
>Is is correct to ask a question as simply as the following:
>
>If the attenuation is given as, e.g., 2 db, what Percentage therefore of a
>received signal is "lost"
>going thru the coax length ?

Decibels are a means of expressing a power ratio when used properly.
Of course, the power ratio is implied by a voltage or current ratio
when the impedance is the same in the two cases being compared. For
that reason, you can say that the power ratio in db is 10*log(P1/P2)
or 20*log(V1/V2) provided Z remains constant.

Nevertheless, voltage or current ratios are often compared using dB
where the Z is not the same, and stricly speaking, the power ratio
rquires an adjustment for the changed impedance.

If the loss is 2dB, the the ratio of power out to power in is
10^(-2/10) or 63%. If the impedance is the same, the ratio of the
voltages will be the square root of 63% or 79%.

Owen
--

1312. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 00:19:10 UTC
From: Dave <noone@nowhere.com>
Message-ID: <a9ydnR5xSukVsHDenZ2dnUVZ_t6dnZ2d@crocker.com>
Source record: 64573

"Allodoxaphobia" <bit-bucket@config.com> wrote in message
news:slrnduq62v.1j93.bit-bucket@shell.config.com...
> In rec.radio.amateur.antenna, you wrote:
>>
>> Dumb question, I know, but just can't find a good pix and callout on
>> the web. Some of the ones I did find don't even agree.
>> For a length of coax with a connector on each end:
>> The Male UHF is PL-259 let's say.
>> But on the other end, for a Female of the same connector type/series,
>> is it called a:
>>
>> PL-258 ?
>> or just a PL259 Female ?
>> or... ?
>>
>> What's the correct designation for the Female ?
>
> Your gonna love this.
>
> It's an SO-239.
>
> Of course, there's the chassis mount, the cable attach, the
> female-to-female feed-through, and more varieties.
>
> Standards ARE GREAT!
> And, there are sooooo many to choose from!
>
> Anyway, it's "SO" for SOcket, and "PL" for PLug.
> The PL-255 is the ol' venerable 1/4", mono audio plug.

the PL-258 is really two SO-239's back to back... go figger!

1313. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 00:23:01 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uqbj78re1ad11@corp.supernews.com>
Source record: 64574

Robert11 wrote:
> Hello:
>
> When a table gives the attenuation (at some freq.) for a length of a
> particular coax in db,
> are they referring to db in voltage or db in power ?

Both. When voltage and power ratios are measured across the same single impedance, the ratio of voltages in dB is the same as the ratio of power in dB. That is, dB in voltage equals dB in power if only one impedance is involved. That's why there are different formulas for dB voltage and power ratios, to make this happen. And it's the case if a coax cable is terminated in its characteristic impedance so the input and output impedances are the same. It's under this condition that cable loss is specified, so the dB loss represents the loss of both voltage and current.

But when you compare the power at the output of a coax cable with the power at the input and the cable isn't terminated in its characteristic impedance, output and input impedances can be very different. The power loss will be somewhat higher than the specification (probably not much, when the matched loss is only 2 dB), but you can have much less or more voltage at the output than the input. So the power and voltage loss in dB can be very different, and you can actually have voltage gain -- although it can be argued that defining dB for a ratio of voltages across two different impedances is a bit shaky and perhaps not too meaningful.
>
> Is is correct to ask a question as simply as the following:
>
> If the attenuation is given as, e.g., 2 db, what Percentage therefore of a
> received signal is "lost"
> going thru the coax length ?

100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.

100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.

These assume that the coax is terminated with its characteristic impedance.

And you don't need to put "lost" in quotation marks. It is truly lost as a signal, having been turned into heat.

Roy Lewallen, W7EL

1314. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 01:10:46 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1139620246.086749.150990@g14g2000cwa.googlegroups.com>
Source record: 64575

How about "17-26B-TGN from RFDigital.com"? UHF cable-mount females are relatively rare, but can be found. Probably best to call them by a descriptive name, such as "UHF-series male connector for RG-213-size cable" for the plug -- or substitute "plug" for "male connector" -- and "female connector" or "socket" if that's what you want. If you really want to be specific, use a vendor's part numbers (as in the first line above), or numbers from some other standard you can mention along with the number.

But for casual conversation,
"A 30 meter length of RG-213 with a UHF plug on one end and a UHF socket on the other." If someone told me they had a cable with a UHF connector on each end, I'd assume they were both plugs.

1315. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 01:12:57 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <kNGdnXLtYPCDp3DeRVn-jg@comcast.com>
Source record: 64476

There are three terms, idb, pdb, and vdb. They are not the same. idb and pdb have the same value: 10*log10 (i/i0), while vdb is 20*log10(v/v0).

Dan

Roy Lewallen wrote:
> Robert11 wrote:
>
>> Hello:
>>
>> When a table gives the attenuation (at some freq.) for a length of a
>> particular coax in db,
>> are they referring to db in voltage or db in power ?
>
>
> Both. When voltage and power ratios are measured across the same single
> impedance, the ratio of voltages in dB is the same as the ratio of power
> in dB. That is, dB in voltage equals dB in power if only one impedance
> is involved. That's why there are different formulas for dB voltage and
> power ratios, to make this happen. And it's the case if a coax cable is
> terminated in its characteristic impedance so the input and output
> impedances are the same. It's under this condition that cable loss is
> specified, so the dB loss represents the loss of both voltage and current.
>
> But when you compare the power at the output of a coax cable with the
> power at the input and the cable isn't terminated in its characteristic
> impedance, output and input impedances can be very different. The power
> loss will be somewhat higher than the specification (probably not much,
> when the matched loss is only 2 dB), but you can have much less or more
> voltage at the output than the input. So the power and voltage loss in
> dB can be very different, and you can actually have voltage gain --
> although it can be argued that defining dB for a ratio of voltages
> across two different impedances is a bit shaky and perhaps not too
> meaningful.
>
>>
>> Is is correct to ask a question as simply as the following:
>>
>> If the attenuation is given as, e.g., 2 db, what Percentage therefore
>> of a received signal is "lost"
>> going thru the coax length ?
>
>
> 100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.
>

> 100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.
>
> These assume that the coax is terminated with its characteristic impedance.
>
> And you don't need to put "lost" in quotation marks. It is truly lost as
> a signal, having been turned into heat.
>
> Roy Lewallen, W7EL

1316. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 01:35:54 UTC
From: stargatesg1 <me@verizon.net>
Message-ID: <_bbHf.277$CZ4.273@trnddc05>
Source record: 64477

Although the other answers given are correct as best as I can remember from school (long time ago), for most practical cb or ham radio purposes just remember that every 3db at a given impedance will 1/2 the power, from radio to antenna, or antenna to radio.

RoD

"Robert11" <rgsros@notme.com> wrote in message news:CO2dnTNEFaEiuHDeRVn-oQ@comcast.com...
> Hello:
>
> When a table gives the attenuation (at some freq.) for a length of a
> particular coax in db,
> are they referring to db in voltage or db in power ?
>
> Is is correct to ask a question as simply as the following:
>
> If the attenuation is given as, e.g., 2 db, what Percentage therefore of a
> received signal is "lost"
> going thru the coax length ?
>
> Thanks,
> Bob
>
>

1317. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 01:52:43 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uqgrf1qtldd9@corp.supernews.com>
Source record: 64478

dansawyeror wrote:
> There are three terms, idb, pdb, and vdb. They are not the same. idb and
> pdb have the same value: 10*log10 (i/i0), while vdb is 20*log10(v/v0).
>

Not quite sure what all these are. But to express a voltage or current ratio in dB, you use:

dB = 20 * log(V2/V1)
dB = 20 * log(I2/I1)

and to express a power ratio in dB, you use:

dB = 10 * log(P2/P1)

If the voltages or currents are measured at the same impedance as the power, the numerical dB values will be the same. For example, let's suppose we have a 100 ohm resistor with one amp flowing through it. Then there's 100 volts across it, and it's dissipating 100 watts.

Double the current to 2 amps. The dB increase in current is

20 * log(2/1) = 6.02 dB

The voltage has also doubled to 200 volts, so the dB increase in voltage is

20 * log(200/100) = 6.02 dB

The power dissipation is now 400 watts, so the dB increase in power is

10 * log(400/100) = 6.02 dB

Cool, huh?

Roy Lewallen, W7EL

1318. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 02:11:13 UTC
From: dplatt@radagast.org
Message-ID: <11uqhu17co8p942@corp.supernews.com>
Source record: 64479

In article <11uqgrf1qtldd9@corp.supernews.com>,
Roy Lewallen <w7el@eznec.com> wrote:

>The power dissipation is now 400 watts, so the dB increase in power is
>
> 10 * log(400/100) = 6.02 dB

>Cool, huh?

Not unless it's a pretty big resistor mounted on a very large
heatsink!

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1319. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 03:53:41 UTC
From: Mr Fed UP <mrfedup@bellsouth.net>
Message-ID: <fadHf.20278$697.1543@bignews3.bellsouth.net>
Source record: 64480

Well that figures.... just like so many on line places to buy things they have everything there but the PRICE!!!
They expect me to return or fart around trying to get some one to put a price on everything I want to buy?

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:CF2Hf.548024$084.539297@attbi_s22...
> Another product that works very well is Lawson 59933 Copper Anti-Seize
> Anti-Corrosion Compound
> http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
> This is the same product that comes with a Butternut vertical antenna. It
> consists of a synthetic grease base, copper, thickener, and rust
> inhibitor. It can withstand temperature ranges from -65&#65533;F to 1800&#65533;F, which
> should be adequate for most ham applications.
>
> John, N9JG
>
> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
> news:11up7id72jhuv5b@corp.supernews.com...
>>I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that
>>is
>> just right for most tasks. It is also a good anti-galling material to
>> use
>> when screwing SS to anything.
>
>

1320. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 08:35:59 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <fESwdfDvHa7DFAd$@ifwtech.co.uk>
Source record: 64481

Owen Duffy wrote:
>
>Perhaps the better generic terms are UHF Male and UHF Female, but it
>seems people like the more technical sounding PL-259 etc.

Or is it that they actively DISlike using the name "UHF"?

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1321. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 08:58:44 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <h14vxNFEda7DFAYN@ifwtech.co.uk>
Source record: 64482

dansawyeror wrote:
>There are three terms, idb, pdb, and vdb. They are not the same. idb
>and pdb have the same value: 10*log10 (i/i0), while vdb is
>20*log10(v/v0).
>

"A decibel is a decibel is a decibel". There is only one kind of decibel, and by definition it is based on a power ratio.

Decibels are always used for comparing power levels. If you're comparing current or voltage levels, you first have to convert them into a power ratio, and that is the reason why you have to use a different formula. Your starting-point was different, but the definition of the decibel remains the same.

There is a similar-looking term, sometimes written as either "dBV", "dBmV" or "dBuV", but that has a different meaning. Anything tagged on after the "dB" indicates a standard reference level. For example, "dBV" means "a power ratio in decibels, relative to the power level of a 1V rms signal measured at the same point in the circuit."

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1322. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 09:14:52 UTC
From: BKR <TAKEOUTTHISPARTrchvid7@lycos.comREMOVE>
Message-ID: <43edaaf6@nntp.zianet.com>
Source record: 64483

Sounds like the one stolen from my house in a home burglary 2 years ago.
Did you get the plastic case with it?

KD5RPO

ceaser wrote:
> I have gotten a GE 40 channel handheld CB is there anything I can do to
> this that would go beyoind the normal operating range? thanks
>

1323. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 10:35:16 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jjeru19q0rcumljvm20f7njf3scuep3pfb@4ax.com>
Source record: 64484

On Sat, 11 Feb 2006 08:35:59 +0000, Ian White GM3SEK
<gm3sek@ifwtech.co.uk> wrote:

>Owen Duffy wrote:
>>
>>Perhaps the better generic terms are UHF Male and UHF Female, but it
>>seems people like the more technical sounding PL-259 etc.
>
>Or is it that they actively DISlike using the name "UHF"?

Ian,

Possibly. I assume that you are hinting at its performance from an impedance discontinuity point of view... however IMHO the greatest disadvantage of UHF connectors is also apparent at HF. UHF connectors depend on proper alignment of the vee points and notches and the coupling ring being very tight to provide ongoing reliable connection that doesn't degrade with vibration.

"UHF" is a bit of a misnomer I agree, but it has market acceptance in one of the largest market places, and that is the generic term for the things.

On another note, I was a little surprised to see the mobile phone manufacturers use the mini-UHF connector which inherited all the faults of the UHF connectors earth / coupling ring arrangement. Probably cheaper and a bit smaller than the TNC connector that they appeared to have standardised upon at the time. Then Nokia needed to invent a proprietary connector, all when SMA would have worked fine.

Owen
--

1324. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 12:35:03 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <XRkHf.760597$x96.380669@attbi_s72>
Source record: 64485

I did buy a can of the stuff from them, but note that a can will last a lifetime for you and ten of your friends. Just fill out the order on the web page, and one of their sales persons will phone you and give you the price. If you don't like the price, you don't have to complete the order. As I recall, it may have been about $25 for quantity one. The call back and the shipment were both done promptly.

"Mr Fed UP" <mrfedup@bellsouth.net> wrote in message
news:fadHf.20278$697.1543@bignews3.bellsouth.net...
> Well that figures.... just like so many on line places to buy things they
> have everything there but the PRICE!!!
> They expect me to return or fart around trying to get some one to put a
> price on everything I want to buy?
>
>
> "John, N9JG" <john@gotwals.XremoveY.com> wrote in message
> news:CF2Hf.548024$084.539297@attbi_s22...
>> Another product that works very well is Lawson 59933 Copper Anti-Seize
>> Anti-Corrosion Compound
>> http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
>> This is the same product that comes with a Butternut vertical antenna. It
>> consists of a synthetic grease base, copper, thickener, and rust
>> inhibitor. It can withstand temperature ranges from -65�F to 1800�F,
>> which should be adequate for most ham applications.
>>
>> John, N9JG
>>
>> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
>> news:11up7id72jhuv5b@corp.supernews.com...
>>>I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that
>>>is
>>> just right for most tasks. It is also a good anti-galling material to
>>> use
>>> when screwing SS to anything.

1325. Coax Losses ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 12:53:51 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <rd2dnRNI18_KQ3DeRVn-ug@comcast.com>
Source record: 64486

Hi,

Just getting started with all of this, and want to say a quick thanks to
everyone for all the help.

Another question:

Am I interpreting this more or less correctly:

Looking at all the different types of coax available.
Will be for a receive-only HF antenna.
Antenna will have to be in the backyard about 150 feet or so from house.

The db losses are beginning to add up; at the upper limit of my interest of
30 MHz
we are getting close to around 3.5 db or so.

Is it correct for me to say that the actual losses really aren't all that
significant or meaningful,
and that a good receiver, which I have, can easily make up for them ?

That the only thing of real concern would be the S/N ?

What are the caveats to my statement above ?

Thanks,
Bob

1326. Re: Coax Losses ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 14:38:42 UTC
From: Doc <ltdoc@yahoo.com>
Message-ID: <1139668673_1760@sp6iad.superfeed.net>
Source record: 64487

Bob,
You're right, for recieving the losses just aren't going to be that much,
and not
really something to worry a lot about. The average receiver ought to handle
and
make up for those losses. Losses will only be noticable on frequencies that
are
not fairly 'close' to one of the harmonics of the design frequency, and then
not
all that bad.
- 'Doc

1327. Re: Coax Losses ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 14:55:32 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <4ga1c3-v3e.ln1@p400bob.personal.cox.net>
Source record: 64489

Hi Bob

Yes that is correct!

You may however get into larger losses from an "unmatched" antenna. This depends on how you feed it. If you (for example) ran a dipole type setup direct connected to the coax end, you will tend to have "notches" as the feedpoint hits a very high impedance value (eg the wire being multiples of a full wavelength but centre fed) Whether this will become an issue or not depends on how much loss occurs. If you (say) cut a dipole for 7MHz there will be this kind of problem at 14 and 28MHz. My gut feel is that both these freqs will be affected adversely. I havent gone to the trouble to guess how wide these "notches" will be but the problem will be worse the higher multiple you go. For transmitting purposes you get around this by using open wire feeder and a tuner. (And for the purists reading I have left out the topic of tuned feeders!)

As a general rule the impedance of a dipole dips to a minimum at resonance. A half wave around 75 ohms and 3/2 wavelengths 150 ohms (I think) In between there is a reactive component that adds to the overall figure. Without consulting some books I dont know the average nunbers off hand but impedances higher than a few thousand ohms are not uncommon.

Now for some quick maths.. If you try to feed an antenna with an input Z of maybe 2500 ohms with your coax - resulting in a 50:1 VSWR, you will lose about 3dB from the normal line length, plus another 10dB for the mismatch.. I's say that will be upsetting maybe from 21MHz up.

This is why its a good reason to use a broadband transformer balun at the antenna feedpoint. Realising that you are probably going to use something like that anyhow..

Apologies for the waffle.. You did ask though!

Cheers Bob

Robert11 wrote:

> Is it correct for me to say that the actual losses really aren't all that
> significant or meaningful,
> and that a good receiver, which I have, can easily make up for them ?
>
> That the only thing of real concern would be the S/N ?
>
> What are the caveats to my statement above ?

1328. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 15:04:02 UTC
From: ceaser <ceaserone@gmail.com>
Message-ID: <1139670242.166583.197620@o13g2000cwo.googlegroups.com>
Source record: 64488

thanks guys, and no BKR this was bought in ohio lol thanks anyway

1329. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 15:36:48 UTC
From: "Juan M." <jdmollanNOSPAMPLEASE@juno.com>
Message-ID: <GaOdnc23B-sMmXPeRVn-uw@centurytel.net>
Source record: 64490
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

Coax cable, even old used stuff makes a great power cable. When I was
running hf mobile I ran and old piece of RG8 directly from the car battery
terminals to the rig. The dc current carrying capacity is more than enough
than for any rig. You also have the advantage of a completely shielded
power line and the battery acts as a giant capacitor, filtering out the fun
little rf components that are present in so many modern cars.
I only wish I had an old diesel rig, the kind without any electronics!

1330. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 16:09:26 UTC
From: Mr Fed UP <mrfedup@bellsouth.net>
Message-ID: <5YnHf.1139$S03.729@bignews1.bellsouth.net>
Source record: 64491

Ok thanks. That looks affordable then. With out prices its hard to tell
these days.
I have an ol AR-10 Ringo that I used back in the 90's for 10 m DXCC and has
been in storage for several years. I think putting some compound on the
joints
may make it work as new again. I been delaying this task so I could get it
up and have it work right the first time.

Thanks 73 K4TWO Gary

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:XRkHf.760597$x96.380669@attbi_s72...
>I did buy a can of the stuff from them, but note that a can will last a
>lifetime for you and ten of your friends. Just fill out the order on the
>web page, and one of their sales persons will phone you and give you the
>price. If you don't like the price, you don't have to complete the order.
>As I recall, it may have been about $25 for quantity one. The call back and
>the shipment were both done promptly.
>
> "Mr Fed UP" <mrfedup@bellsouth.net> wrote in message
> news:fadHf.20278$697.1543@bignews3.bellsouth.net...
>> Well that figures.... just like so many on line places to buy things they
>> have everything there but the PRICE!!!
>> They expect me to return or fart around trying to get some one to put a
>> price on everything I want to buy?
>>
>>
>> "John, N9JG" <john@gotwals.XremoveY.com> wrote in message
>> news:CF2Hf.548024$084.539297@attbi_s22...
>>> Another product that works very well is Lawson 59933 Copper Anti-Seize
>>> Anti-Corrosion Compound
>>> http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
>>> This is the same product that comes with a Butternut vertical antenna.
>>> It consists of a synthetic grease base, copper, thickener, and rust
>>> inhibitor. It can withstand temperature ranges from -65�F to 1800�F,
>>> which should be adequate for most ham applications.
>>>
>>> John, N9JG
>>>
>>> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
>>> news:11up7id72jhuv5b@corp.supernews.com...
>>>>I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that
>>>>is
>>>> just right for most tasks. It is also a good anti-galling material to

>>>> use
>>>> when screwing SS to anything.
>
>

1331. how to build a high Q low loss counterpoise coil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 16:16:41 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <dOSdnS3gZ5RxkHPenZ2dnUVZ_tCdnZ2d@comcast.com>
Source record: 64492

All,

Reg's counterpoise program predicts the effective ground of a centerloaded vertical on 75 meters can be improved by a tuned relatively short counterpoise system. This is dependent on a large, high Q, low loss tuning coil.

After some playing with the numbers a starting point for the design of such a coil is 200 mm diameter, 200 mm long, with 4 gage wire, and a pitch of about .7. This is obviously quite large.

My questions are:

1. Where is a good tutorial for large coils?

2. Are there coil forms for such coils?

3. What would the impact of a square or octagon be versus round?

4. How critical is spacing toward a high Q?

Thanks,

Dan - kb0qil

1332. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 16:26:11 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <DeoHf.768848$_o.716842@attbi_s71>
Source record: 64493

Be careful about trusting my memory. I bought the can several months ago,
and I didn't save the invoice because I knew I had more than a lifetime's
supply. When you do find the price, go ahead and post it here.

"Mr Fed UP" <mrfedup@bellsouth.net> wrote in message
news:5YnHf.1139$S03.729@bignews1.bellsouth.net...
> Ok thanks. That looks affordable then. With out prices its hard to tell
> these days.
> I have an ol AR-10 Ringo that I used back in the 90's for 10 m DXCC and
> has
> been in storage for several years. I think putting some compound on the
> joints
> may make it work as new again. I been delaying this task so I could get
> it
> up and have it work right the first time.
>
> Thanks 73 K4TWO Gary
>
>
>
>
> "John, N9JG" <john@gotwals.XremoveY.com> wrote in message
> news:XRkHf.760597$x96.380669@attbi_s72...
>>I did buy a can of the stuff from them, but note that a can will last a
>>lifetime for you and ten of your friends. Just fill out the order on the
>>web page, and one of their sales persons will phone you and give you the
>>price. If you don't like the price, you don't have to complete the order.
>>As I recall, it may have been about $25 for quantity one. The call back
>>and the shipment were both done promptly.
>>
>

1333. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 16:30:24 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <11us495apthgse0@corp.supernews.com>
Source record: 64494

Ian White GM3SEK wrote:
> dansawyeror wrote:
>
>> There are three terms, idb, pdb, and vdb. They are not the same. idb
>> and pdb have the same value: 10*log10 (i/i0), while vdb is
>> 20*log10(v/v0).
>>
>
> "A decibel is a decibel is a decibel". There is only one kind of
> decibel, and by definition it is based on a power ratio.
>
> Decibels are always used for comparing power levels. If you're comparing
> current or voltage levels, you first have to convert them into a power
> ratio, and that is the reason why you have to use a different formula.
> Your starting-point was different, but the definition of the decibel
> remains the same.
>
>
> There is a similar-looking term, sometimes written as either "dBV",
> "dBmV" or "dBuV", but that has a different meaning. Anything tagged on
> after the "dB" indicates a standard reference level. For example, "dBV"
> means "a power ratio in decibels, relative to the power level of a 1V
> rms signal measured at the same point in the circuit."
>
>

Actually what I was taught was the standard unit is the BEL, named in
honor of Alexander Graham Bell. This is a large value hence the DECIBEL
or 1/10 of a BEL is generally used.

Dave WD9BDZ

1334. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 16:36:28 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <si4su15ki9dhr4ucd5d9sjioa4o1ujag54@4ax.com>
Source record: 64495

Here is a penetrox link from a ham supplier.
http://www.dxengineering.com/Parts.asp?ID=17&PLID=119&SecID=90&DeptID=21&PartNo=DXE%2DP8A

On Fri, 10 Feb 2006 21:53:41 -0600, "Mr Fed UP"
<mrfedup@bellsouth.net> wrote:

>Well that figures.... just like so many on line places to buy things they
>have everything there but the PRICE!!!
>They expect me to return or fart around trying to get some one to put a
>price on everything I want to buy?
>
>
>"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
>news:CF2Hf.548024$084.539297@attbi_s22...
>> Another product that works very well is Lawson 59933 Copper Anti-Seize
>> Anti-Corrosion Compound
>> http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
>> This is the same product that comes with a Butternut vertical antenna. It
>> consists of a synthetic grease base, copper, thickener, and rust
>> inhibitor. It can withstand temperature ranges from -65ï¿½F to 1800ï¿½F, which
>> should be adequate for most ham applications.
>>
>> John, N9JG
>>
>> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
>> news:11up7id72jhuv5b@corp.supernews.com...
>>>I am a big fan of Penetrox-A. It is sold in a small squeeze-bottle that
>>>is
>>> just right for most tasks. It is also a good anti-galling material to
>>> use
>>> when screwing SS to anything.
>>
>>
>
John Ferrell W8CCW

1335. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 17:03:51 UTC
From: richardharrison@webtv.net
Message-ID: <22778-43EE18F7-598@storefull-3258.bay.webtv.net>
Source record: 64497

Ian, GM3SEK wrote:
"Decibels are always used for comparing power levels."

True.

The decibel or dB is a power ratio. The dB alone says nothing about the quantity of power, only the ratio between powers. Thus, the dB is useful to express the gain of a linear amplifier or the loss of a resistance pad.

The dB can be used to express a power level by reference to some known quantity of power. In this case, the ratio is said to be so many dB above or below the reference level.

In the telephone industry, the most common reference level is one milliwatt. Signal loss is common. Cables fave loss per foot or mile. Attenuation is a division process. Amplification is a multiplication process. It is convenient to express the amount of power at a particular point in a system as being so many dB above or below a reference power of one milliwatt because adding and subtracting decibels gives the same answers as multiplying and dividing powers. Decibels above or below one milliwatt is usually abbreviated as + or - dBm.

DBa and dBrn indicate the interfering effect of noise in a communications channel. DBx is used to indicate crosstalk coupling into telephone circuits.

VU is a volume unit. Reference is to one milliwatt, same as the dBm, but the ballistics of the meter are specified so that a standard response is made to varying signal level.

Other dB units are easily contrived. There are dBw (dB referenced to one watt), dBk (dB referenced to one kilowatt), dBRAP (dB above reference acoustical power which is defined at 10 ro the minus 16 watts), etc, etc, etc.

Best regards, Richard Harrison, KB5WZI

1336. Re: how to build a high Q low loss counterpoise coil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 17:14:02 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uXoHf.29184$F_3.25471@newssvr29.news.prodigy.net>
Source record: 64496

dansawyeror wrote:
> Reg's counterpoise program predicts the effective ground of a
> centerloaded vertical on 75 meters can be improved by a tuned relatively
> short counterpoise system. This is dependent on a large, high Q, low
> loss tuning coil.

Are these elevated radials? How elevated? High-Q coils
in ground-level radials would probably be a waste of
time and effort.
--
73, Cecil http://www.qsl.net/w5dxp

1337. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 17:22:01 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <PdGdnUBVs_mkgHPeRVn-vw@comcast.com>
Source record: 64498

Come on folks. This stuff is cheap compared to maintenance. A 1 minute web search finds Noalox at Home Depot stores for $8.95 for an 8oz. bottle. Penetrox is about the same price but not sold by Home Depot.

Larry, W0QE

1338. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 17:23:37 UTC
From: richardharrison@webtv.net
Message-ID: <22778-43EE1D99-599@storefull-3258.bay.webtv.net>
Source record: 64499

J. Wetstein wrote:
"Could it have to do with static control (somehow) because of the winter weather?"

Cold brought the FM and AM antennas together. They liked it and wanted to marry.The wedding wasn`t much, but the reception was great!

Best regards, Richard Harrison, KB5WZI

1339. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 17:42:11 UTC
From: RST Engineering <jim@rstengineering.com>
Message-ID: <6c371$43ee21ee$42512a4c$17466@DIALUPUSA.NET>
Source record: 64500

Hm. I was taught that the egotistical SOB named it after himself, no honor involved.

Jim

> Actually what I was taught was the standard unit is the BEL, named in
> honor of Alexander Graham Bell. This is a large value hence the DECIBEL or
> 1/10 of a BEL is generally used.
>
> Dave WD9BDZ

1340. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 18:06:25 UTC
From: Mr Fed UP <mrfedup@bellsouth.net>
Message-ID: <zFpHf.1149$S03.342@bignews1.bellsouth.net>
Source record: 64501

Sorry ... whine wasn't about the price... it was about advert's with out any prices.
They want our business but too lazy or dumb to post prices with the ad's
Big radio stores included check most of the ad's in your handy QST and
you can see that they make YOU work to find prices. Maybe Wal-Mart
will get into radios , then the price competition can start LOL

My apologies to those who know all and have deep pockets.

If you don't like the postings.... well if your that smart I don't need to finish.

Thanks 73 K4TWO Gary

"Larry Benko" <xxw0qe@comcast.net> wrote in message
news:PdGdnUBVs_mkgHPeRVn-vw@comcast.com...
> Come on folks. This stuff is cheap compared to maintenance. A 1 minute
> web search finds Noalox at Home Depot stores for $8.95 for an 8oz. bottle.
> Penetrox is about the same price but not sold by Home Depot.
>
> Larry, W0QE

1341. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 18:34:13 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <hNadnVKM6Y-4s3PeRVn-sw@comcast.com>
Source record: 64502

I must have mis-understood your whine but my comment was not directed to
ward anyone. From my point of view, unless I enjoy talking about
connections that are unreliable (I don't), the price of Penetrox or
Noalox is really cheap compared to having to disassemble connections and
clean them.

Larry, W0QE

Mr Fed UP wrote:

> Sorry ... whine wasn't about the price... it was about advert's with out any
> prices.
> They want our business but too lazy or dumb to post prices with the ad's
> Big radio stores included check most of the ad's in your handy QST and
> you can see that they make YOU work to find prices. Maybe Wal-Mart
> will get into radios , then the price competition can start LOL
>
> My apologies to those who know all and have deep pockets.
>
> If you don't like the postings.... well if your that smart I don't need to
> finish.
>
> Thanks 73 K4TWO Gary
>
>
> "Larry Benko" <xxw0qe@comcast.net> wrote in message
> news:PdGdnUBVs_mkgHPeRVn-vw@comcast.com...
>
>>Come on folks. This stuff is cheap compared to maintenance. A 1 minute
>>web search finds Noalox at Home Depot stores for $8.95 for an 8oz. bottle.
>>Penetrox is about the same price but not sold by Home Depot.
>>
>>Larry, W0QE
>
>
>

1342. Re: SteppIR antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 18:58:27 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <11usculi4pp2qce@corp.supernews.com>
Source record: 64503

Kenneth Grimm wrote:
> On Tue, 30 Sep 2003 23:17:30 -0500, Cecil Moore
> <Cecil.A.Moore@ieee.ONEDOT.org> wrote:
>
>
>> Uncle Peter wrote:
>>
>>>Nothing is forever.
>>
>>Not even time. :-)
>
>
> This has yet to be conclusively demonstrated....
>
> Ken K4XL
> k4xl@arrl.net
>
>Time is also warped, not just us

1343. Re: how to build a high Q low loss counterpoise coil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 19:01:31 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43EE348B.4090100@comcast.net>
Source record: 64504

Cecil,

They are elevated, based on Reg's program. It predicts that a relatively large, diameter about equal to length, 2 gage wire, high Q coil feeding a 2 meter radial about .5 meters elevated produces a resistance of just over 2 Ohms. This is at 3970 kc.

I have not tried this with another model, I seem to be unable to create coil descriptors to feed nec.

The fundamental construction questions relate to 'accuracy'. What would the effect be on Q be of a flat sides? What would the effect be if the wire (I plan to use 1/4 inch copper tube) had small 'ripples' in the wind.

Thanks - Dan

Cecil Moore wrote:
> dansawyeror wrote:
>
>> Reg's counterpoise program predicts the effective ground of a
>> centerloaded vertical on 75 meters can be improved by a tuned
>> relatively short counterpoise system. This is dependent on a large,
>> high Q, low loss tuning coil.
>
>
> Are these elevated radials? How elevated? High-Q coils
> in ground-level radials would probably be a waste of
> time and effort.

1344. Re: Some info needed!?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 19:01:55 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <11usd55v98upc0@corp.supernews.com>
Source record: 64505

ceaser wrote:
> I have gotten a GE 40 channel handheld CB is there anything I can do to
> this that would go beyoind the normal operating range? thanks
>
I think it's 5 watts AM. FIVE WATTS ONLY, AM ONLY.

KF5DE

1345. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 19:37:16 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <11usf7kab6etd7b@corp.supernews.com>
Source record: 64506

RST Engineering wrote:
> Hm. I was taught that the egotistical SOB named it after himself, no honor
> involved.
>
> Jim
>
>
>
>
>>Actually what I was taught was the standard unit is the BEL, named in
>>honor of Alexander Graham Bell. This is a large value hence the DECIBEL or
>>1/10 of a BEL is generally used.
>>
>>Dave WD9BDZ
>
>
>

For a (fairly) comprehensive write up on the "decibel" go to
https://ewhdbks.mugu.navy.mil/decibel.htm .

Also:

Alexander Graham Bell
From Wikipedia, the free encyclopedia

Bell and decibel

The bell is a unit of measurement invented by Bell Labs and named after
Bell. The bell was too large for everyday use, so the decibel (dB),
equal to 0.1 B, became more commonly used. The dB is commonly used as a
unit for measuring sound intensity.

Dave WD9BDZ

1346. Re: Coax Connector Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 19:46:20 UTC
From: dplatt@radagast.org
Message-ID: <11usfocfb860ff8@corp.supernews.com>
Source record: 64507

In article <jjeru19q0rcumljvm20f7njf3scuep3pfb@4ax.com>,
Owen Duffy <owen@no.where> wrote:

>"UHF" is a bit of a misnomer I agree, but it has market acceptance in
>one of the largest market places, and that is the generic term for the
>things.

As I have heard it, this is a case of TLA (three-letter acronym)
collision. The full term for these connectors started out "Universal
High Frequency" (UHF) and did not imply that they were used, or good
for, "Ultra-High Frequency" operation.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1347. Coax Sources ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 19:59:25 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <woednYHW4v-I33PeRVn-gA@comcast.com>
Source record: 64508

Hello:

Other than the Wireman and Davis, anyone have any sources for bulk coax, and made up coax lengths with fittings
they would care to recommend ?

Thanks.

1348. Re: how to build a high Q low loss counterpoise coil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 20:23:12 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <ndhsu1dsuvot0ra484je54h1pufjcoh0bs@4ax.com>
Source record: 64509

On Sat, 11 Feb 2006 08:16:41 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>All,
>
>Reg's counterpoise program predicts the effective ground of a centerloaded
>vertical on 75 meters can be improved by a tuned relatively short counterpoise
>system. This is dependent on a large, high Q, low loss tuning coil.
>
>After some playing with the numbers a starting point for the design of such a
>coil is 200 mm diameter, 200 mm long, with 4 gage wire, and a pitch of about .7.
>This is obviously quite large.
>
>My questions are:
>
>1. Where is a good tutorial for large coils?

http://www.seed-solutions.com/gregordy/Amateur%20Radio/Experimentation/HiQCoil.htm

Especially his reference No. 5.

Not specifically about inductor design, but might be of interest, are
some modeling experiments I did at:

www.k6mhe.com/n7ws

Nos. 1, 2 and 3.

Also see No. 14 if you think silver plating will help. (It won't).

>
>2. Are there coil forms for such coils?
>
>3. What would the impact of a square or octagon be versus round?
>
>4. How critical is spacing toward a high Q?
>
>Thanks,
>
>Dan - kb0qil

1349. Re: Coax Losses ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 20:35:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11usilchl6j771e@corp.supernews.com>
Source record: 64510

You have the right idea. Signal/noise ratio is all that counts.

When receiving HF, feedline loss almost never matters. The reason is that atmospheric noise is strong, and unless a receiver is exceptionally noisy and/or an antenna is exceptionally lossy, the atmospheric noise will be much greater than the receiver noise.

The input to the receiver consists of the signal and atmospheric noise, to which the receiver adds its own noise. As long as the atmospheric noise is much greater than the receiver noise, you won't hear the receiver noise. Any attenuation in the antenna system will attenuate both the signal and the atmospheric noise equally, so the signal/noise ratio, which determines what you can hear, doesn't change. Any gain ahead of or within the receiver has the same effect.

Atmospheric noise declines as the frequency increases, so it might be possible to start hearing some receiver noise over it as you approach 30 MHz, particularly if your receiver is unusually noisy and/or the antenna system unusually lossy. As soon as receiver noise becomes audible over the atmospheric noise, the rules change. Then, attenuation ahead of the receiver will reduce the signal but not the receiver noise -- which is now the "noise" part of the signal/noise ratio --, so it *will* decrease the signal/noise ratio.

There's a very simple test to determine whether reducing the loss will improve your ability to hear signals. Tune your receiver to a spot with no signals in the frequency band of interest. Turn up the volume so you can clearly hear the background noise. Then disconnect your antenna(*). If the noise decreases, it means that atmospheric noise is dominating, so reducing loss won't help the signal/noise ratio. If the noise doesn't decrease, you're hearing receiver noise with the antenna connected and you'd benefit by reducing losses ahead of the receiver. You'll probably find that the noise will decrease by quite a few dB when you disconnect the antenna, and this represents the amount of loss you can add before your ability to hear signals suffers.

When receiving HF, about the only way you can improve your signal/noise ratio is by using a directional antenna. This will reduce the atmospheric noise coming from unneeded directions. Particular kinds of antennas can also improve the signal/noise ratio if the dominant noise is man made and coming from a nearby source.

(*) In a really marginal case, you might need to replace the antenna with a dummy load for this test -- an ordinary small 47 or 51 ohm resistor will suffice -- but it usually isn't necessary.

Roy Lewallen, W7EL

Robert11 wrote:
> Hi,
>
> Just getting started with all of this, and want to say a quick thanks to
> everyone for all the help.
>
> Another question:
>
> Am I interpreting this more or less correctly:
>
> Looking at all the different types of coax available.
> Will be for a receive-only HF antenna.
> Antenna will have to be in the backyard about 150 feet or so from house.
>
> The db losses are beginning to add up; at the upper limit of my interest of
> 30 MHz
> we are getting close to around 3.5 db or so.
>
> Is it correct for me to say that the actual losses really aren't all that
> significant or meaningful,
> and that a good receiver, which I have, can easily make up for them ?
>
> That the only thing of real concern would be the S/N ?
>
> What are the caveats to my statement above ?
>
> Thanks,
> Bob
>
>
>

1350. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 20:42:55 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11usiuk6fbnjr3b@corp.supernews.com>
Source record: 64511

Dear Frank:
I run licensed NEC4 with an appropriate version of EZNEC on a PC. The
OS is W2000.
73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Frank" <frank599@nospamtelus.net> wrote in message
news:277Cf.110589$AP5.60182@edtnps84...
<snip>
>
> You mention "Nec 4 cards". Do you actually support NEC 4? I plan to
obtain
> a license for NEC 4 in the near future, and your interface looks
> interesting; The cost of GNEC from Nittany Scientific is a bit high, but
> thought it is probably the only way to run NEC 4 on a PC.
>
> Frank
>
>

1351. Re: help appreciated with unusual j pole feed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 22:10:52 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1139695852.501908.208960@g47g2000cwa.googlegroups.com>
Source record: 64512

No, posting a picture here wouln't be acceptable. You could send it to those who ask, though. From your description, it sounds like the loop of insulated wire between the two pins couples to the stub--the 1/4-wave bottom of the antenna. I guess that stub is over 400mm long, so your wire only goes up a fraction of that distance. Someone may have engineered it, or they may have determined it empiracally, but it sounds to me like quite an acceptable way to couple to the antenna. And that seems like the most likely reason it's there, so that's where I'd connect the coax. I'd guess that there isn't much difference between the two possible polarities of connecting the coax to those pins.

Cheers,
Tom

1352. Re: SteppIR antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 22:24:20 UTC
From: Russ <carlzomer@hotmail.com>
Message-ID: <huosu1tob8aj7ak6vel3v6u9asq29tkmcq@4ax.com>
Source record: 64513

On Sat, 11 Feb 2006 12:58:27 -0600, Butch Magee <lynyrd@cableone.net>
wrote:

>Kenneth Grimm wrote:
>> On Tue, 30 Sep 2003 23:17:30 -0500, Cecil Moore
>> <Cecil.A.Moore@ieee.ONEDOT.org> wrote:
>>
>>
>>> Uncle Peter wrote:
>>>
>>>>Nothing is forever.
>>>
>>>Not even time. :-)
>>
>>
>> This has yet to be conclusively demonstrated....
>>
>> Ken K4XL
>> k4xl@arrl.net
>>
>>Time is also warped, not just us

Time, as we humans know it does not exist. It is an artificial
contraint we place on the universe so we can better understand it.

R

1353. Re: Coax Sources ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 22:34:51 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <4kpsu1t1afnu6vq2jcr1b0c9iufv7g9tjd@4ax.com>
Source record: 64514

On Sat, 11 Feb 2006 14:59:25 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>Other than the Wireman and Davis, anyone have any sources for bulk coax, and
>made up coax lengths with fittings
>they would care to recommend ?
>
>Thanks.
>

http://www.cablexperts.com/

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1354. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 22:39:21 UTC
From: Frank <frank599@nospamtelus.net>
Message-ID: <tItHf.2202$Be4.1294@clgrps13>
Source record: 64515

Thanks for the info Mac. I see EZNEC/4 is $600.00, compared to $795.00 for GNEC. I have no trouble with the FORTRAN compiled program on my PC, although the graphics leave a little to be desired. Not sure what I will do to improve it yet. Not that interested in GUI inputs, as I find it far easier to edit NEC code directly.

73,

Frank
VE6CB

"J. Mc Laughlin" <jcm@power-net.net> wrote in message
news:11usiuk6fbnjr3b@corp.supernews.com...
> Dear Frank:
> I run licensed NEC4 with an appropriate version of EZNEC on a PC. The
> OS is W2000.
> 73 Mac N8TT
>
> --
> J. Mc Laughlin; Michigan U.S.A.
> Home: JCM@Power-Net.Net
> "Frank" <frank599@nospamtelus.net> wrote in message
> news:277Cf.110589$AP5.60182@edtnps84...
> <snip>
>>
>> You mention "Nec 4 cards". Do you actually support NEC 4? I plan to
> obtain
>> a license for NEC 4 in the near future, and your interface looks
>> interesting; The cost of GNEC from Nittany Scientific is a bit high, but
>> thought it is probably the only way to run NEC 4 on a PC.
>>
>> Frank
>>
>>
>
>

1355. Re: Why is my car radio acting strangly?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 23:46:15 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <rEuHf.2873$Ly6.1861@bignews5.bellsouth.net>
Source record: 64516
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.misc,alt.radio.amateur,alt.radio,alt.radio.broadcasting

"Christopher Thompson" <kf4drr@alltel.net> wrote in message
news:91015$43ec991b$d8602e79$2545@ALLTEL.NET...
> that raises a good question. had there been any engine work where they may
> have inadvertantly left the ground strap from the body to the engine off
or
> loose? keep in mind as posted below the body is grounded to the engine
> block, and the battery neg goes to the engine block.

It was an old Buick - no telling how much work had been done.
The ground strap was still there.
The 12¢ in of #12 from the negative terminal to a screw on the body fixed
it, and only cost 60¢ or so.
I had started tracing circuits from the + side, so it took longer to figure
it out than it took to find the ¢ key and the ¢ key on my keyboard.

1356. Re: Coax Sources ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-11 23:49:13 UTC
From: Charlie <charlie@usc.edu>
Message-ID: <11usu07a90vj3a3@news.supernews.com>
Source record: 64517

Radio Ware makes excellent cable assemblies. I have nearly 500ft of their
ready made Davis Bury Flex 9914.

1. http://radiobooks.com/products/ca9914f.htm

--

Charlie-AD5TH
www.deepsouthnet.net

"Dan Richardson" <k6mhe@mailinator.com> wrote in message
news:4kpsu1t1afnu6vq2jcr1b0c9iufv7g9tjd@4ax.com...
> On Sat, 11 Feb 2006 14:59:25 -0500, "Robert11" <rgsros@notme.com>
> wrote:
>
>>Hello:
>>
>>Other than the Wireman and Davis, anyone have any sources for bulk coax,
>>and
>>made up coax lengths with fittings
>>they would care to recommend ?
>>
>>Thanks.
>>
>
> http://www.cablexperts.com/
>
>
>
> email: k6mhe<at>arrl<dot>net
> http://www.k6mhe.com/

1357. one more balun question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 02:51:42 UTC
From: yzordderrex@verizon.net
Message-ID: <1139712702.614447.265020@g47g2000cwa.googlegroups.com>
Source record: 64518

I am putting up a T2FD (I think it's called a tilted terminated
folded dipole) In my attic. I have arthritis and am afraid to go out
on the roof anyway - so no diatrabs/platitudes about how much better I
would like a such and such antenna on the roof please. I think
antenna will probably be primary used over 9mc. I will probably SWL
only and don't intend to transmit on it. Can I use a regular 300ohm to
75ohm tv type of balun? I realize that for transmitting I would want
to keep the impedance high to keep core magnitizing flux low, but I am
reasoning that this is probably not an issue because receive microvolts
aren't going to energize the core with any flux anyway. In other
words I realize the impedance at 9mc is quite a bit less than channel
2. Am I hallucinating again?

73
Bob
N9NEO

1358. Re: how to build a high Q low loss counterpoise coil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 16:39:14 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43EF64B2.3040204@comcast.net>
Source record: 64519

Wes,

Thank you. That is exactly what I was looking for. My question is: How is the coil wound? The author speaks about threading. Do you have a reference about how to wind one?

Thanks - Dan

Wes Stewart wrote:
> On Sat, 11 Feb 2006 08:16:41 -0800, dansawyeror
> <dansawyeror@comcast.net> wrote:
>
>
>>All,
>>
>>Reg's counterpoise program predicts the effective ground of a centerloaded
>>vertical on 75 meters can be improved by a tuned relatively short counterpoise
>>system. This is dependent on a large, high Q, low loss tuning coil.
>>
>>After some playing with the numbers a starting point for the design of such a
>>coil is 200 mm diameter, 200 mm long, with 4 gage wire, and a pitch of about .7.
>>This is obviously quite large.
>>
>>My questions are:
>>
>>1. Where is a good tutorial for large coils?
>
>
> http://www.seed-solutions.com/gregordy/Amateur%20Radio/Experimentation/HiQCoil.htm
>
> Especially his reference No. 5.
>
> Not specifically about inductor design, but might be of interest, are
> some modeling experiments I did at:
>
> www.k6mhe.com/n7ws
>
> Nos. 1, 2 and 3.
>
> Also see No. 14 if you think silver plating will help. (It won't).
>
>
>>2. Are there coil forms for such coils?
>>
>>3. What would the impact of a square or octagon be versus round?

>>
>>4. How critical is spacing toward a high Q?
>>
>>Thanks,
>>
>>Dan - kb0qil
>
>

1359. Re: help appreciated with unusual j pole feed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 17:08:22 UTC
From: kevin <khorseman@lineone.net>
Message-ID: <dsnq2dihl1@news8.svr.pol.co.uk>
Source record: 64520

thanks for that tom, i have tried it experimentally coupled to the pins but
it was dissapointing, infact i needed to disconnect the outer coax to get
any signal at all.

think i'll try build something, perhaps j pole or maybe skirted dipole type.

thanks for your answers tom.

cheers
kevin

"K7ITM" <k7itm@msn.com> wrote in message
news:1139695852.501908.208960@g47g2000cwa.googlegroups.com...
> No, posting a picture here wouln't be acceptable. You could send it to
> those who ask, though. From your description, it sounds like the loop
> of insulated wire between the two pins couples to the stub--the
> 1/4-wave bottom of the antenna. I guess that stub is over 400mm long,
> so your wire only goes up a fraction of that distance. Someone may
> have engineered it, or they may have determined it empiracally, but it
> sounds to me like quite an acceptable way to couple to the antenna.
> And that seems like the most likely reason it's there, so that's where
> I'd connect the coax. I'd guess that there isn't much difference
> between the two possible polarities of connecting the coax to those
> pins.
>
> Cheers,
> Tom
>

1360. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 19:08:53 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <8u1vu19cv2q7f90j0ods38805gsjev2c5n@4ax.com>
Source record: 64521

A little more info:
http://lists.contesting.com/archives//cgi-bin/mesg.cgi?a=Towertalk&i=v01530500aeaf6ee61189%40%5B207.65.48.146%5D

On Sat, 11 Feb 2006 10:22:01 -0700, Larry Benko <xxw0qe@comcast.net>
wrote:

>Come on folks. This stuff is cheap compared to maintenance. A 1 minute
>web search finds Noalox at Home Depot stores for $8.95 for an 8oz.
>bottle. Penetrox is about the same price but not sold by Home Depot.
>
>Larry, W0QE
John Ferrell W8CCW

1361. diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 20:03:34 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com>
Source record: 64522

I am using Reg's programs to calculate the Q and R of 'large'. These coils are in the range of 220 mm in diameter and long.

There seems to be a difference in the coil simulation between Vertload and c_poise. In particular c_poise seems more sensitive to coil wire diameter then vertload. Vertical load will create a coil with low R and a relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not predict Q). C_poise requires a large wire diameter, 12 mm and a high pitch, >.8 to achieve similar R values.

Is there a reason for this? Am I missing something?

Is there a way to simulate Q and R for these coils with nec?? How would one create an nec representation for a coil?

Thanks - Dan - kb0qil

1362. For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:02:04 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <apmdndg-hbPwl3LenZ2dnUVZ_vmdnZ2d@comcast.com>
Source record: 64523

Hi Roy,

Thanks for reply re my older post on db question. Very clear explanations
by all.
Will put this as a new thread, though.

New at this, and relize I'm not thinking about this the correct way,
probably.

Relative to a receiving antenna's signal: what does the receiver actually
respond to; power or voltage at its input ?

Bob

>> If the attenuation is given as, e.g., 2 db, what Percentage therefore
>> of a received signal is "lost"
>> going thru the coax length ?
>
>
> 100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.
>
> 100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.
>
> These assume that the coax is terminated with its characteristic
> impedance.
>
> And you don't need to put "lost" in quotation marks. It is truly lost as
> a signal, having been turned into heat.
>
> Roy Lewallen, W7EL

1363. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:17:49 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <ltqdnZU4p92EX3LeRVn-rw@web-ster.com>
Source record: 64524

Robert11 wrote:

> Hi Roy,
>
> Thanks for reply re my older post on db question. Very clear explanations
> by all.
> Will put this as a new thread, though.
>
> New at this, and relize I'm not thinking about this the correct way,
> probably.
>
> Relative to a receiving antenna's signal: what does the receiver actually
> respond to; power or voltage at its input ?
>
> Bob
>
> ----------
>
(snip)

Boy, that almost demands a philosophical answer.

But only almost.

Power. You can (and most really low noise receivers do) transform the impedance at the antenna into some ideal source impedance for the RF preamp (or mixer if you're operating in a band where atmospheric noise exceeds thermal noise by a good amount). Assuming an ideal* impedance transformation each time you can go from almost any source impedance, and the noise figure (which is a power ratio) will remain the same.

* Almost never a match. Low noise amplifiers usually do _not_ want a matched source for best noise figure, although there are ways to force it to happen.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

Posting from Google? See http://cfaj.freeshell.org/google/

1364. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:23:45 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <5sPHf.27484$Jd.10088@newssvr25.news.prodigy.net>
Source record: 64525

Not to mention, that Home Depot (and Lowes), have even smaller bottles ,
4 oz,$6.00 , and think even 2 oz tubes, for even less! And a little
goes a long way! Jim NN7K

John Ferrell wrote:
> A little more info:
> http://lists.contesting.com/archives//cgi-bin/mesg.cgi?a=Towertalk&i=v01530500aeaf6ee611
89%40%5B207.65.48.146%5D
>
> On Sat, 11 Feb 2006 10:22:01 -0700, Larry Benko <xxw0qe@comcast.net>
> wrote:
>
>
>>Come on folks. This stuff is cheap compared to maintenance. A 1 minute
>>web search finds Noalox at Home Depot stores for $8.95 for an 8oz.
>>bottle. Penetrox is about the same price but not sold by Home Depot.
>>
>>Larry, W0QE
>
> John Ferrell W8CCW

1365. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:33:50 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <yBPHf.27485$Jd.8750@newssvr25.news.prodigy.net>
Source record: 64426

Again, BOTH, tho, usually, sensitivity is expressed in Micro-Volts, but
the dB range also holds. And, to further confuse facts, sensitivity ,
at VHF/UHF/Microwave, uses Noise (figure/factor), which refers to a
Perfect Reciever (no internal noise), vs. your front end rf stage, or
at your antenna's output, before coax loss's and other things (like
BACKGROUND Received NOISE, ect.) Jim NN7K

Robert11 wrote:
> Hi Roy,
>
> Thanks for reply re my older post on db question. Very clear explanations
> by all.
> Will put this as a new thread, though.
>
> New at this, and relize I'm not thinking about this the correct way,
> probably.
>
> Relative to a receiving antenna's signal: what does the receiver actually
> respond to; power or voltage at its input ?
>
> Bob
>
> ----------
>
>
>
>>>If the attenuation is given as, e.g., 2 db, what Percentage therefore
>>>of a received signal is "lost"
>>>going thru the coax length ?
>>
>>
>>100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.
>>
>>100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.
>>
>>These assume that the coax is terminated with its characteristic
>>impedance.
>>
>>And you don't need to put "lost" in quotation marks. It is truly lost as
>>a signal, having been turned into heat.
>>
>>Roy Lewallen, W7EL
>
>

>

1366. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:43:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dsoh7u$504$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64427

> Relative to a receiving antenna's signal: what does the receiver
actually
> respond to; power or voltage at its input ?
>
> Bob
>
> --

The S-meter is actually a wattmeter. S9 = 50 pico-watts into a
50-ohms receiver input impedance.

It indicates signal strength and strength is watts.

A typical meter is scaled from -54 dB to +50 dB relative to S9.

That's why S9 is roughly half way along the scale - about 50 dB on
each side of it.

-54 dB corresponds roughly to receiver internal noise level.

+50 dB corresponds to receiver overload level.

Reg, G4FGQ

1367. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-12 23:47:16 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <8OPHf.9448$W31.154@edtnps90>
Source record: 64428

"GH" should do it Dan. I also did a Mathcad analysis based on Terman. If
you have Mathcad I can send it to you. One thing I should do is compare NEC
with Terman.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>I am using Reg's programs to calculate the Q and R of 'large'. These coils
>are in the range of 220 mm in diameter and long.
>
> There seems to be a difference in the coil simulation between Vertload and
> c_poise. In particular c_poise seems more sensitive to coil wire diameter
> then vertload. Vertical load will create a coil with low R and a
> relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
> predict Q). C_poise requires a large wire diameter, 12 mm and a high
> pitch, >.8 to achieve similar R values.
>
> Is there a reason for this? Am I missing something?
>
> Is there a way to simulate Q and R for these coils with nec?? How would
> one create an nec representation for a coil?
>
> Thanks - Dan - kb0qil

1368. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 00:25:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uvkf4hp9c8qc3@corp.supernews.com>
Source record: 64429

Robert11 wrote:
> Hi Roy,
>
> Thanks for reply re my older post on db question. Very clear explanations
> by all.
> Will put this as a new thread, though.
>
> New at this, and relize I'm not thinking about this the correct way,
> probably.
>
> Relative to a receiving antenna's signal: what does the receiver actually
> respond to; power or voltage at its input ?

The short answer is power. You can't have one without the other, but you can choose to have various voltages for the same amount of power. A receiver has a fixed source impedance, and this determines the fixed relationship between power and voltage at its input. You can transform the impedance with various passive circuits, resulting in various other impedances with correspondingly different voltages. But this won't change the amount of power available from the antenna.

I'm avoiding discussion of the effects of impedance matching in order to keep the answer brief and hopefully clear.

Roy Lewallen, W7EL

1369. wtb 30-50 amp power supply

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 01:36:19 UTC
From: dustradio@copper.net
Message-ID: <1139794579.449892.324970@o13g2000cwo.googlegroups.com>
Source record: 64430

prefer the linear over switching . please assist

max

1370. Re: wtb 30-50 amp power supply

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 02:04:18 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <CORHf.771849$_o.356074@attbi_s71>
Source record: 64431

Check this site http://www.astroncorp.com/linear.shtml

<dustradio@copper.net> wrote in message
news:1139794579.449892.324970@o13g2000cwo.googlegroups.com...
> prefer the linear over switching . please assist
>
> max
>

1371. Smith chart/SWR/multiband dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 02:34:21 UTC
From: Mark Sheffield <sheffield@earthlink.net>
Message-ID: <4urvu11tdnqqglu4j0o17alhvu4s6cp1bl@4ax.com>
Source record: 64432

I have a question regarding dipole length, SWR and Smith charts.

I'm using a 40/80 trap dipole and wish to lengthen the 80M portion to lower the SWR in the CW part of the band. I'm reading a SWR about 1.2:1 at 3.8MHz, 4.8:1 at 3.5MHz, which I wish to drop a little to ease up on the auto-tuner in my radio. I plan on adding a couple of feet and remeasure and I'll probably be close enough for rock and roll.

Now, I use this antenna on other bands - I can load it on 20 (SWR < 3), 15 (SWR < 3) and 10 (SWR < 3.2). I'd like to know what the impact of adding another 2 ft to each side will do on these bands.

So - looking at the Smith chart, I can draw my circles for each band and I can measure the physical length of each side of the dipole. How do I relate length to SWR on the chart? And, would this be useful to first-order? The whole function of a dipole is to radiate, so is this a very lossy system, or would this be close enough to lossless to get a good look?

Thanks for your thoughts

Mark/n0lf

1372. Re: Smith chart/SWR/multiband dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 03:02:24 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11uvtm3151pnkb3@corp.supernews.com>
Source record: 64433

Mark Sheffield wrote:
>
> I have a question regarding dipole length, SWR and Smith charts.
>
> I'm using a 40/80 trap dipole and wish to lengthen the 80M portion to
> lower the SWR in the CW part of the band. I'm reading a SWR about
> 1.2:1 at 3.8MHz, 4.8:1 at 3.5MHz, which I wish to drop a little to
> ease up on the auto-tuner in my radio. I plan on adding a couple of
> feet and remeasure and I'll probably be close enough for rock and
> roll.
>
> Now, I use this antenna on other bands - I can load it on 20 (SWR <
> 3), 15 (SWR < 3) and 10 (SWR < 3.2). I'd like to know what the impact
> of adding another 2 ft to each side will do on these bands.

It's impossible to say without knowing the L and C values making up the traps. You'll just have to try it.

> So - looking at the Smith chart, I can draw my circles for each band
> and I can measure the physical length of each side of the dipole. How
> do I relate length to SWR on the chart?

The relationship isn't a simple one. The SWR depends on the impedance, and the way in which the impedance changes with length and frequency is complex. Various approximations can be used, each with its own limitations on accuracy and range of validity. The only practical way to find the input impedance of all but the very simplest antennas is with a computer modeling program. Traps add another level of difficulty. If you know the impedance of the traps at a given frequency, you can model the antenna at that frequency. But to know the antenna impedance over a range of frequencies, you need to know what's in the trap, or you need to know the trap's impedance at each frequency. If you don't know what's in the trap, neither does the program.

> And, would this be useful to
> first-order? The whole function of a dipole is to radiate, so is this
> a very lossy system, or would this be close enough to lossless to get
> a good look?

I suggest trying a modeling program. The free EZNEC demo program from http://eznec.com is adequate for modeling simple antennas. Again, though, you'll need to know more about the traps to make even a guess at what the antenna impedance will be, whether you use a program or some approximate method.

Roy Lewallen, W7EL

1373. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 05:04:00 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F01340.8010707@comcast.net>
Source record: 64434

Frank,

I am stuck with the GH descriptor. Do you have a tool that can generate a description of a coil 250x250 mm with 22 turns of 12 mm tubing?

Is it as simple as doing the division and filling in the entries?

Thanks - Dan

Frank wrote:
> "GH" should do it Dan. I also did a Mathcad analysis based on Terman. If
> you have Mathcad I can send it to you. One thing I should do is compare NEC
> with Terman.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>
>>I am using Reg's programs to calculate the Q and R of 'large'. These coils
>>are in the range of 220 mm in diameter and long.
>>
>>There seems to be a difference in the coil simulation between Vertload and
>>c_poise. In particular c_poise seems more sensitive to coil wire diameter
>>then vertload. Vertical load will create a coil with low R and a
>>relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
>>predict Q). C_poise requires a large wire diameter, 12 mm and a high
>>pitch, >.8 to achieve similar R values.
>>
>>Is there a reason for this? Am I missing something?
>>
>>Is there a way to simulate Q and R for these coils with nec?? How would
>>one create an nec representation for a coil?
>>
>>Thanks - Dan - kb0qil
>
>
>

1374. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 05:08:20 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <8vUHf.10125$W31.6359@edtnps90>
Source record: 64435

Try this Dan:

```
CM Inductor Q Calculation
CE
GH 1 500 10 200 100 100 100 100 2.5
GW 2 5 100 0 200 0 0 200 2.5
GW 3 10 0 0 200 0 0 0 2.5
GW 4 5 0 0 0 100 0 0 2.5
GS 0 0 0.001000
GE 0
EX 0 3 5 00 1 0
FR 0 9 0 0 3.7 0.025
LD 5 1 1 520 5.7001E7
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

I am sure you need to fine tune the structure, since I just guessed at the wire diameter at 5 mm for #4. Also not sure what you mean by "Pitch". This coils shows a Q of 2600 at 3.8 MHz. Don't know how 4Nec2 will handle it, but you could end up with 520 tags!

73,

Frank

"Frank" <ve6cb@nospam.telus.net> wrote in message
news:8OPHf.9448$W31.154@edtnps90...
> "GH" should do it Dan. I also did a Mathcad analysis based on Terman. If
> you have Mathcad I can send it to you. One thing I should do is compare
> NEC with Terman.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>>I am using Reg's programs to calculate the Q and R of 'large'. These coils
>>are in the range of 220 mm in diameter and long.
>>
>> There seems to be a difference in the coil simulation between Vertload
>> and c_poise. In particular c_poise seems more sensitive to coil wire
>> diameter then vertload. Vertical load will create a coil with low R and a
>> relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
>> predict Q). C_poise requires a large wire diameter, 12 mm and a high
>> pitch, >.8 to achieve similar R values.
>>

>> Is there a reason for this? Am I missing something?
>>
>> Is there a way to simulate Q and R for these coils with nec?? How would
>> one create an nec representation for a coil?
>>
>> Thanks - Dan - kb0qil
>
>

1375. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 05:10:31 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <bxUHf.10126$W31.130@edtnps90>
Source record: 64436

Ok Dan, posted a response before I saw your comments. Getting a bit late
here, but will try your dimensions tomorrow.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43F01340.8010707@comcast.net...
> Frank,
>
> I am stuck with the GH descriptor. Do you have a tool that can generate a
> description of a coil 250x250 mm with 22 turns of 12 mm tubing?
>
> Is it as simple as doing the division and filling in the entries?
>
> Thanks - Dan
>
> Frank wrote:
>> "GH" should do it Dan. I also did a Mathcad analysis based on Terman.
>> If you have Mathcad I can send it to you. One thing I should do is
>> compare NEC with Terman.
>>
>> Frank
>>
>>
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>>
>>>I am using Reg's programs to calculate the Q and R of 'large'. These
>>>coils are in the range of 220 mm in diameter and long.
>>>
>>>There seems to be a difference in the coil simulation between Vertload
>>>and c_poise. In particular c_poise seems more sensitive to coil wire
>>>diameter then vertload. Vertical load will create a coil with low R and a
>>>relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
>>>predict Q). C_poise requires a large wire diameter, 12 mm and a high
>>>pitch, >.8 to achieve similar R values.
>>>
>>>Is there a reason for this? Am I missing something?
>>>
>>>Is there a way to simulate Q and R for these coils with nec?? How would
>>>one create an nec representation for a coil?
>>>
>>>Thanks - Dan - kb0qil
>>
>>

1376. Re: Smith chart/SWR/multiband dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 10:45:44 UTC
From: Mark Sheffield <sheffield@earthlink.net>
Message-ID: <jio0v1pjce7l6nochu3chc7vpf9ugblpti@4ax.com>
Source record: 64437

Thanks for your reply, Roy

Rgds - Mark Sheffield/n0lf

On Sun, 12 Feb 2006 19:02:24 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Mark Sheffield wrote:
>>
>> I have a question regarding dipole length, SWR and Smith charts.
>>
>> I'm using a 40/80 trap dipole and wish to lengthen the 80M portion to
>> lower the SWR in the CW part of the band. I'm reading a SWR about
>> 1.2:1 at 3.8MHz, 4.8:1 at 3.5MHz, which I wish to drop a little to
>> ease up on the auto-tuner in my radio. I plan on adding a couple of
>> feet and remeasure and I'll probably be close enough for rock and
>> roll.
>>
>> Now, I use this antenna on other bands - I can load it on 20 (SWR <
>> 3), 15 (SWR < 3) and 10 (SWR < 3.2). I'd like to know what the impact
>> of adding another 2 ft to each side will do on these bands.
>
>It's impossible to say without knowing the L and C values making up the
>traps. You'll just have to try it.
>
>> So - looking at the Smith chart, I can draw my circles for each band
>> and I can measure the physical length of each side of the dipole. How
>> do I relate length to SWR on the chart?
>
>The relationship isn't a simple one. The SWR depends on the impedance,
>and the way in which the impedance changes with length and frequency is
>complex. Various approximations can be used, each with its own
>limitations on accuracy and range of validity. The only practical way to
>find the input impedance of all but the very simplest antennas is with a
>computer modeling program. Traps add another level of difficulty. If you
>know the impedance of the traps at a given frequency, you can model the
>antenna at that frequency. But to know the antenna impedance over a
>range of frequencies, you need to know what's in the trap, or you need
>to know the trap's impedance at each frequency. If you don't know what's
>in the trap, neither does the program.
>
>> And, would this be useful to
>> first-order? The whole function of a dipole is to radiate, so is this
>> a very lossy system, or would this be close enough to lossless to get
>> a good look?

>
>I suggest trying a modeling program. The free EZNEC demo program from
>http://eznec.com is adequate for modeling simple antennas. Again,
>though, you'll need to know more about the traps to make even a guess at
>what the antenna impedance will be, whether you use a program or some
>approximate method.
>
>Roy Lewallen, W7EL

1377. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 13:41:24 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <800lf.344$fQ1.22@clgrps12>
Source record: 64438

Hi Dan, Try the following code:

```
CM Inductor Q Calculation
CE
GH 1 500 11.36363636 250 125 125 125 125 5
GW 2 5 125 0 250 0 0 250 5
GW 3 10 0 0 250 0 0 0 5
GW 4 5 0 0 0 125 0 0 5
GS 0 0 0.001000
GE 0
EX 0 3 5 00 1 0
FR 0 3 0 0 3.7 0.1
LD 5 1 1 520 5.7001E7
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

Note that a detailed description of the "GH" fields are on page 20 of the "NEC - 2, Part III: User's Guide"; on page 20. The guide can be obtained at http://www.nec2.org/other/nec2prt3.pdf and is only just over 400 kB.

The coil dimensions you gave me are not physically realizable since 22 turns of 12 mm diameter wire will result in a coil length of 264 mm. I have therefore revised the wire radius to 5 mm. NEC will return an error if I attempt to input a radius of 6 mm.

NEC indicates the coil is 123 uH, and a Q of 4471 at 3.8 MHz. You would certainly have to silver plate the coil in order to maintain such a Q. The formation of copper oxide will cause Q degradation over time -- despite what some people seem to think.

I have thought of building hi-Q inductors with 1/4" copper pipe, but not sure how you can do the same with 1/2" pipe as it must be very difficult to bend.

Before building an antenna with such loaded radials I think it would be interesting to model it with non-loaded radials, and compare it with a "Lumped element" loading coil analysis.

73,

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43F01340.8010707@comcast.net...
> Frank,
>
> I am stuck with the GH descriptor. Do you have a tool that can generate a

> description of a coil 250x250 mm with 22 turns of 12 mm tubing?
>
> Is it as simple as doing the division and filling in the entries?
>
> Thanks - Dan
>
> Frank wrote:
>> "GH" should do it Dan. I also did a Mathcad analysis based on Terman.
>> If you have Mathcad I can send it to you. One thing I should do is
>> compare NEC with Terman.
>>
>> Frank
>>
>>
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>>
>>>I am using Reg's programs to calculate the Q and R of 'large'. These
>>>coils are in the range of 220 mm in diameter and long.
>>>
>>>There seems to be a difference in the coil simulation between Vertload
>>>and c_poise. In particular c_poise seems more sensitive to coil wire
>>>diameter then vertload. Vertical load will create a coil with low R and a
>>>relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
>>>predict Q). C_poise requires a large wire diameter, 12 mm and a high
>>>pitch, >.8 to achieve similar R values.
>>>
>>>Is there a reason for this? Am I missing something?
>>>
>>>Is there a way to simulate Q and R for these coils with nec?? How would
>>>one create an nec representation for a coil?
>>>
>>>Thanks - Dan - kb0qil
>>
>>

1378. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 14:32:59 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <t161v11jcf97fvfv5nphs2co0vgpm4e4ul@4ax.com>
Source record: 64439

On Mon, 13 Feb 2006 13:41:24 GMT, "Frank" <ve6cb@nospam.telus.net>
wrote:

>NEC indicates the coil is 123 uH, and a Q of 4471 at 3.8 MHz. You would
>certainly have to silver plate the coil in order to maintain such a Q. The
>formation of copper oxide will cause Q degradation over time -- despite what
>some people seem to think.

It is not just what "some people" think.

Check out: http://k6mhe.com/n7ws/Plating.pdf

73,
Danny, K6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1379. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 15:17:27 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F0A307.3070802@comcast.net>
Source record: 64440

Thank you. I will use this to figure out how to do this manually.

You are correct about the wire. Reg's program predicted 9mm not 12. I copied the wrong number. 22 turns of 9mm tubing is correct. I am not sure how physically realizable that number is.

Dan

Frank wrote:
> Hi Dan, Try the following code:
>
> CM Inductor Q Calculation
> CE
> GH 1 500 11.36363636 250 125 125 125 125 5
> GW 2 5 125 0 250 0 0 250 5
> GW 3 10 0 0 250 0 0 0 5
> GW 4 5 0 0 0 125 0 0 5
> GS 0 0 0.001000
> GE 0
> EX 0 3 5 00 1 0
> FR 0 3 0 0 3.7 0.1
> LD 5 1 1 520 5.7001E7
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
>
> Note that a detailed description of the "GH" fields are on page 20 of the
> "NEC - 2, Part III: User's Guide"; on page 20. The guide can be obtained at
> http://www.nec2.org/other/nec2prt3.pdf and is only just over 400 kB.
>
> The coil dimensions you gave me are not physically realizable since 22 turns
> of 12 mm diameter wire will result in a coil length of 264 mm. I have
> therefore revised the wire radius to 5 mm. NEC will return an error if I
> attempt to input a radius of 6 mm.
>
> NEC indicates the coil is 123 uH, and a Q of 4471 at 3.8 MHz. You would
> certainly have to silver plate the coil in order to maintain such a Q. The
> formation of copper oxide will cause Q degradation over time -- despite what
> some people seem to think.
>
> I have thought of building hi-Q inductors with 1/4" copper pipe, but not
> sure how you can do the same with 1/2" pipe as it must be very difficult to
> bend.
>
> Before building an antenna with such loaded radials I think it would be
> interesting to model it with non-loaded radials, and compare it with a

> "Lumped element" loading coil analysis.
>
> 73,
>
> Frank
>
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43F01340.8010707@comcast.net...
>
>>Frank,
>>
>>I am stuck with the GH descriptor. Do you have a tool that can generate a
>>description of a coil 250x250 mm with 22 turns of 12 mm tubing?
>>
>>Is it as simple as doing the division and filling in the entries?
>>
>>Thanks - Dan
>>
>>Frank wrote:
>>
>>>"GH" should do it Dan. I also did a Mathcad analysis based on Terman.
>>>If you have Mathcad I can send it to you. One thing I should do is
>>>compare NEC with Terman.
>>>
>>>Frank
>>>
>>>
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:2uCdnZM2ip4FCXLenZ2dnUVZ_s6dnZ2d@comcast.com...
>>>
>>>
>>>>I am using Reg's programs to calculate the Q and R of 'large'. These
>>>>coils are in the range of 220 mm in diameter and long.
>>>>
>>>>There seems to be a difference in the coil simulation between Vertload
>>>>and c_poise. In particular c_poise seems more sensitive to coil wire
>>>>diameter then vertload. Vertical load will create a coil with low R and a
>>>>relativily small wire diameter and pitch, 2 mm and .2 pitch (it does not
>>>>predict Q). C_poise requires a large wire diameter, 12 mm and a high
>>>>pitch, >.8 to achieve similar R values.
>>>>
>>>>Is there a reason for this? Am I missing something?
>>>>
>>>>Is there a way to simulate Q and R for these coils with nec?? How would
>>>>one create an nec representation for a coil?
>>>>
>>>>Thanks - Dan - kb0qil
>>>

>>>
>

1380. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 15:43:38 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <KO1If.365$fQ1.65@clgrps12>
Source record: 64441

"Dan Richardson" <k6mhe@mailinator.com> wrote in message
news:t161v11jcf97fvfv5nphs2co0vgpm4e4ul@4ax.com...
> On Mon, 13 Feb 2006 13:41:24 GMT, "Frank" <ve6cb@nospam.telus.net>
> wrote:
>
>>NEC indicates the coil is 123 uH, and a Q of 4471 at 3.8 MHz. You would
>>certainly have to silver plate the coil in order to maintain such a Q.
>>The
>>formation of copper oxide will cause Q degradation over time -- despite
>>what
>>some people seem to think.
>
> It is not just what "some people" think.
>
> Check out: http://k6mhe.com/n7ws/Plating.pdf
>
> 73,
> Danny, K6MHE

Thanks Danny, Interesting paper. It certainly points out problems with silver plating. I must say I have never attempted to measure the Qs of inductors with and without plating, but it is something to think about. My point was more about the effects of copper oxide on inductor Q. It makes me think that the best way to prevent the build up of oxide is to use some kind of low-loss insulating material on the surface of the copper.

73,

Frank

1381. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 18:12:51 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dsqi73$q0j$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64442

It is power which leaves the transmitter.

Power is what is received by the receiver.

So the S-meter is a power meter.

It is a great pity that the usual S-meter is scaled partly in S-units
and partly in decibels relative to S9.

But given that 1 S-unit = 6 dB, the modern meter scale fits very
nicely between receiver internal noise level and the receiver overload
point.

And, for example, it's so much easier to report signal strength as S5
rather than 0.047 micro-microwatts.

In the same vein, we could, of course, report a signal strength of 20
dB over S9 as S12 and be done with decibels.

Reg, G4FGQ.

1382. Re: wtb 30-50 amp power supply

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 18:21:42 UTC
From: bob <bobkkk@hotmail.com>
Message-ID: <1139855199.81676@www.vif.com>
Source record: 64443

Buy Canadian, http://www.mainelectronics.com/pwrsup.htm

<dustradio@copper.net> wrote in message
news:1139794579.449892.324970@o13g2000cwo.googlegroups.com...
> prefer the linear over switching . please assist
>
> max
>

1383. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 18:49:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v1l5a65eqj0ef@corp.supernews.com>
Source record: 64444

Frank wrote:
> Thanks Danny, Interesting paper. It certainly points out problems with
> silver plating. I must say I have never attempted to measure the Qs of
> inductors with and without plating, but it is something to think about. My
> point was more about the effects of copper oxide on inductor Q. It makes me
> think that the best way to prevent the build up of oxide is to use some kind
> of low-loss insulating material on the surface of the copper.

The problem is that copper oxide isn't necessarily what forms on copper -- you can have copper chloride, sulfide, oxide, and perhaps other salts in various combinations and thicknesses depending on the environment. Likewise, silver will form all those salts.

If a chemical coating is a very poor conductor or a very good conductor, it won't appreciably degrade the Q. What will degrade the Q is a coating of sufficient thickness of an intermediate conductivity. I've tried for years to find data on the various salts of both metals, and found only very few.

But here's a quote from Chipman (_Theory and Problems of Transmission Lines_, 1968, p.81 - thanks to Wes, N7WS!):

"For many years it was thought that silver was necessarily the best plating material, since silver has the highest conductivity of all metals. However, careful measurements have shown that the corrosion products on a silver surface in ordinary atmospheres have intermediate conductivity, while those on a copper surface have very low conductivity. The result is that high frequency currents in a copper conductor flow almost entirely in the copper, below the surface corrosion layers, and the conductor's effective conductivity is that of the copper. For a silver conductor, on the other hand, an appreciable fraction of the current flows in the corrosion material of intermediate conductivity (the corrosion products are generally oxides and sulfides) and the effective conductivity of the conductor as a whole may be substantially less than that of silver. If a silver surface is protected against corrosion, including oxidation, by an extremely thin layer of plated or evaporated gold or by a low-loss dielectric coating, a silver plated conductor will have the lowest possible distributed resistance."

Chipman is obviously assuming a pure silver plating. As Danny's posted paper (http://k6mhe.com/n7ws/Plating.pdf) points out, "silver" platings are seldom pure silver, and are usually considerably less conductive than copper to begin with.

So it's been known for at least several decades that silver plating degrades Q over the long run, for a couple of reasons. But myths die hard.

Incidentally, I've found a couple of errors in the equations in the Fowler paper Danny posted (and which Wes N7WS kindly sent me years ago), apparently made during the copying of the original equations from their source. There seem to be some additional errors which I can't identify. If anyone knows where I might get a copy of the paper with the original equations, which is reference 10 (Astbury) in the Fowler paper, I'd be very appreciative. I've requested a copy of the paper through the local library, but it's likely to take a very long time to get. Perhaps some of the U.K. readers can make a suggestion, since the I.E.E. is the British equivalent of our I.E.E.E. I see from the I.E.E. web site that they're in the process of getting their older journals on line, but haven't finished the task. I don't mind at all paying a fee for it.

Roy Lewallen, W7EL

1384. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 19:48:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1o5lf.12678$2O6.5450@newssvr12.news.prodigy.com>
Source record: 64445

Frank wrote:
> It makes me
> think that the best way to prevent the build up of oxide is to use some kind
> of low-loss insulating material on the surface of the copper.

Magnet wire comes to mind.
--
73, Cecil http://www.qsl.net/w5dxp

1385. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 20:00:13 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <h9p1v1lcttvl6t3kgq0jprlv0vcvo47ikv@4ax.com>
Source record: 64446

On Mon, 13 Feb 2006 10:49:11 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

> As Danny's posted
>paper (http://k6mhe.com/n7ws/Plating.pdf) points out, "silver" platings
>are seldom pure silver, and are usually considerably less conductive
>than copper to begin with.

That's not my posting. It was done by Wes, N7WS.

Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1386. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 20:08:59 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsqp0s$ap9$1@engnntp2.cig.mot.com>
Source record: 64448

Bob,

To more directly answer your question...

One way to look at it is, that it is power which does the deed. To be fair, however, you can't have power without the voltage and visa-versa. This is when we are talking about receivers not OP amps. When a receiver receives a signal, there is a voltage present and current flowing at its input. They both occur. They both have to. Together these represent some amount of power. The receiver's input stage needs some RF energy to tickle its input so it can amplify it for the next stage. It is this power which is the energy. Because both of these quantities are there, we can use either to talk about the sensitivity of said receiver. Although not "normal" we could just as easily use current as a metric for receiver sensitivity.

Voltage is directly measurable so it is easy to use as a measure. It has been used over the centuries (not really) as a standard way of measuring what is happening in a circuit.

Power, on the other hand, cannot be directly measured it has to be calculated. Power, we know, is Volts times Amps or E x I. There are other ways to figure out power which I won't go into here, but this is how we must be satisfied doing it.

Why, you may ask then, do we use these power numbers instead of just voltage AND to make matters worse, why do we express them in some obscure thing like dBm? Good question! So we Engineers can keep you Hams in a steady state of confusion and therefore keep us in high esteem and power... Not really, but I'll stop here to see if this helped any.

73, Steve, K9DCi

You can't have
"Robert11" <rgsros@notme.com> wrote in message
news:apmdndg-hbPwI3LenZ2dnUVZ_vmdnZ2d@comcast.com...
> Hi Roy,
>
> Thanks for reply re my older post on db question. Very clear explanations
> by all.
> Will put this as a new thread, though.
>
> New at this, and relize I'm not thinking about this the correct way,
> probably.
>
> Relative to a receiving antenna's signal: what does the receiver actually

> respond to; power or voltage at its input ?
>
> Bob
>
> ---
>
>
> >> If the attenuation is given as, e.g., 2 db, what Percentage therefore
> >> of a received signal is "lost"
> >> going thru the coax length ?
> >
> >
> > 100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.
> >
> > 100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.
> >
> > These assume that the coax is terminated with its characteristic
> > impedance.
> >
> > And you don't need to put "lost" in quotation marks. It is truly lost as
> > a signal, having been turned into heat.
> >
> > Roy Lewallen, W7EL
>
>

1387. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 20:15:05 UTC
From: Paul Hinman <paul.hinman@shaw.ca>
Message-ID: <dN5lf.611092$ki.127776@pd7tw2no>
Source record: 64447

me wrote:

>well none of the above stops the Lightning getting into shack and racing
>around zapping all and sundry ?
>i got a Border Collie here that could get coax into a shack, stop getting
>gear zapped , well thats different
>heres what I did,
>get ur coax from INSIDE TO OUTER WALL,
>Terminate it pl259's or whatever, make 2 pieces of ally box section that
>will fit together, on the outer side, alighn SO-239's on both ally pieces,
>one to collect the coax from INSIDE the shack, and another row to collect
>the terminated coax from the antennas,, slide the ally box section together,
>and connect centre of SO-239's to SO -239's with BANANA PLUG centres to
>ensure a RF connection,
>position a Bolt on one side of one ally section, and form a S shaped piece
>of ally flat with a hole drilled into it, to take a thin piece of rope,
>terminate all so-239s with appropiate coax's ?/ all done, STORM comes, pull
>rope, S shape pivots against the bolt in the ally section and UNPLUGS all
>antennas together, KEEPING all the nasties OUTSIDE, when storm has gone
>plug it back in,
>been using one for 15 yrs,
>
>73
>will gladly take some pics if anyone wants
>
>
>
>"David Shrader" <W1MCE@comcast.net> wrote in message
>news:FMedndDAK4Vj-nvenZ2dnUVZ_tCdnZ2d@comcast.com...
>
>
>>Scott wrote:
>>
>>
>>>I drilled the wall and put in a section of PVC. Ran all the coax and
>>>then filled the PVC with foam in insulation. Scott
>>>N2WMD
>>>
>>>On Sat, 04 Feb 2006 07:47:23 -0500, Amos Keag <A.K01@comcast.net>
>>>wrote:
>>>
>>>
>>>
>>>

>>>>Richard W. Solomon, W1KSZ wrote:
>>>>
>>>>
>>>>
>>>>
>>>>>I know you can get UHF type feedthrus in various lengths,
>>>>>but do they exist in "N" Connector style.
>>>>>What do folks use to run coax thru walls ?
>>>>>
>>>>>Tnx, Dick, W1KSZ
>>>>>
>>>>>
>>>>Dick, I use a drill followed by a length of coax.
>>>>
>>>>!-)
>>>>
>>>>
>>FOAM?? No!
>>
>>Dick, get a tube of colored caulking compound. I use BROWN for a brown
>>house [of course]. It makes a weather and insect proof seal and is easily
>>removed if needed [simply pull the coax and both the coax and caulking
>>come right out].
>>
>>Dave
>>
>>
>>
>
>
>
>
Please send the photos, thanx

Paul Ve6LDS

Paul#dot#hinman#at#shaw#dot#ca

Edmail address should be easy enough to decode.

1388. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 20:37:41 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsqqmm$c1l$1@engnntp2.cig.mot.com>
Source record: 64449

If Roy's answer works for you, skip mine. I think an answer of mine on this must be in the archives.

Rule number one:
The Decibel is a measure of the ratio of two power levels ONLY, ALWAYS and NEVER anything else.
Rule Number two. We like to violate rules and drive newbies crazy.

However, I'll go back to Rule Number One first.

The so called "Voltage dB", "Current dB" and "Power dB' are all figments of your (well some people's)imagination. I used to have fun with new Engineers tripping them up on this. "Why are Voltage dBs twice as big as power dB's?". This is a false-reasoned question.

While, it is a fact that there is only one "kind" of dB, there are, however, three ways to _calculate_ them depending on what quantities you have at hand. Because Power is Volts times Amps, there is something special happening when we do the math. Lets call this V x A for this discussion.

For a simple case of doubling the power - or a power ratio of two to one:
In order to get twice the power, we need to change the Voltage AND Current enough so that VxA is twice what we started.
1 Volt and 1 Amp gives 1 Watt
For 2 Watts we'll need:
1.414 Volts and 1.414 Amps 1.414 x 1.414 = 2

Looking, we see that the voltage did NOT double. It went up less that twice.

However, we can calculate the decibel difference from the voltage difference OR the power difference. Using the "Power dB" formula for dB we get the correct 3.whatever dB and using the "Voltage dB" formula we get the VERY SAME amount of 3.whatever dB.

So the dB are not different, only the starting quantities and, therefore the formulas.

Rule Number 2:
We can, and, we do use the voltage formula (if it's there, use it... just like the mountain climber's answer to why does he climb the mountain...because it's there) in cases where we are not actually doing power ratio comparisons. Why? Because it is easy to compare large differences this way..that is, in the log format. Frequently, voltage gain in OP amp circuits is shown in dB even though there is practically an INFINITE power gain. This is because the input resistance is very high and the output resistance is very low and ignoring the resistance and ONLY

looking at the voltage gives erroneous dB numbers. HOWEVER, those in the field know and understand this and all is well in the universe, so to speak. By measuring the voltage gain, and using the dB formula, it is easier to show 50 dB "Voltage" gain than showing a gain of 100,000. Silly Engineers!

73, Steve, K9DCI

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:kNGdnXLtYPCDp3DeRVn-jg@comcast.com...
> There are three terms, idb, pdb, and vdb. They are not the same. idb and pdb
> have the same value: 10*log10 (i/i0), while vdb is 20*log10(v/v0).
>
> Dan
>
>
> Roy Lewallen wrote:
> > Robert11 wrote:
> >
> >> Hello:
> >>
> >> When a table gives the attenuation (at some freq.) for a length of a
> >> particular coax in db,
> >> are they referring to db in voltage or db in power ?
> >
> >
> > Both. When voltage and power ratios are measured across the same single
> > impedance, the ratio of voltages in dB is the same as the ratio of power
> > in dB. That is, dB in voltage equals dB in power if only one impedance
> > is involved. That's why there are different formulas for dB voltage and
> > power ratios, to make this happen. And it's the case if a coax cable is
> > terminated in its characteristic impedance so the input and output
> > impedances are the same. It's under this condition that cable loss is
> > specified, so the dB loss represents the loss of both voltage and current.
> >
> > But when you compare the power at the output of a coax cable with the
> > power at the input and the cable isn't terminated in its characteristic
> > impedance, output and input impedances can be very different. The power
> > loss will be somewhat higher than the specification (probably not much,
> > when the matched loss is only 2 dB), but you can have much less or more
> > voltage at the output than the input. So the power and voltage loss in
> > dB can be very different, and you can actually have voltage gain --
> > although it can be argued that defining dB for a ratio of voltages
> > across two different impedances is a bit shaky and perhaps not too
> > meaningful.
> >
> >>
> >> Is is correct to ask a question as simply as the following:
> >>
> >> If the attenuation is given as, e.g., 2 db, what Percentage therefore

> >> of a received signal is "lost"
> >> going thru the coax length ?
> >
> >
> > 100 * (1 - 10^(-dB/10)) ~ 37% is the fraction of power lost.
> >
> > 100 * (1 - 10^(-dB/20)) ~ 21% is the fraction of voltage lost.
> >
> > These assume that the coax is terminated with its characteristic
impedance.
> >
> > And you don't need to put "lost" in quotation marks. It is truly lost as
> > a signal, having been turned into heat.
> >
> > Roy Lewallen, W7EL

1389. Re: demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 20:49:10 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dsqrc6cgv1@engnntp2.cig.mot.com>
Source record: 64450

None. Different terms for the same thing. Perhaps time is the
difference...
In the early days, "Detector" was used. Why? Who knows! It worked. You
listen for a weak signal and if you were good, you could "detect" one.
Therefore that part of the receiver was the "Detector".

As we grew and became more sophisticated, we "modulated a signal on a
carrier". Since we used the same "detector" to capture it, we "detected"
the signal.
If getting on a plane is boarding and getting off is "de-planeing" then the
opposite of modulating must be "de-modulating".

It's like why is "Random Access Memory" called RAM when ROM "Read Only
Memory" is also "Random Access".

We're just a bunch of silly techno-geeks.

73, Steve, K9DCI

"Ron J" <bigschlong@gmail.com> wrote in message
news:1139513435.028624.39500@g43g2000cwa.googlegroups.com...
> Good morn',
>
> What is the difference between a demodulator and a detector? I was
> reading the datasheet and I noticed a block diagram that says FM
> detector and another diagram that says FM demodulator.
>
> Thanks!
>

1390. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 21:33:03 UTC
From: chuck <nospam@nospam.net>
Message-ID: <jW6lf.15067$rH5.6357@newsread2.news.atl.earthlink.net>
Source record: 64451

Technically, is it not energy that leaves the transmitter and is
received by the receiver?

Actual integration being performed by later receiver stages and/or the
human ear/brain?

Chuck, NT3G

Reg Edwards wrote:
> It is power which leaves the transmitter.
>
> Power is what is received by the receiver.
>
> So the S-meter is a power meter.
>
> It is a great pity that the usual S-meter is scaled partly in S-units
> and partly in decibels relative to S9.
>
> But given that 1 S-unit = 6 dB, the modern meter scale fits very
> nicely between receiver internal noise level and the receiver overload
> point.
>
> And, for example, it's so much easier to report signal strength as S5
> rather than 0.047 micro-microwatts.
>
> In the same vein, we could, of course, report a signal strength of 20
> dB over S9 as S12 and be done with decibels.
> ----
> Reg, G4FGQ.
>
>

1391. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 23:44:17 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v26ek3oi94fab@corp.supernews.com>
Source record: 64452

Steve Nosko wrote:
>> . . .
> Power, on the other hand, cannot be directly measured it has to be
> calculated. Power, we know, is Volts times Amps or E x I. There are other
> ways to figure out power which I won't go into here, but this is how we must
> be satisfied doing it.
> . . .

Power meters are in wide use and directly measure power by detecting the amount of heat it produces.

Roy Lewallen, W7EL

1392. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-13 23:52:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vZ8If.28585$Jd.15754@newssvr25.news.prodigy.net>
Source record: 64453

chuck wrote:
> Technically, is it not energy that leaves the transmitter and is
> received by the receiver?

Technically, RF energy passing a point/plane during a unit
of time is RF power (joules/sec). We can't have one without
the other.
--
73, Cecil http://www.qsl.net/w5dxp

1393. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 01:42:02 UTC
From: chuck <nospam@nospam.net>
Message-ID: <Kzalf.18306$vU2.4181@newsread3.news.atl.earthlink.net>
Source record: 64454

OK, I'm a little confused. Well, maybe more than a little.

Starting with energy as the "ability to do work" and power as the rate at which energy is "transformed" into work, things quickly get muddy.

Energy passing through an imaginary surface (or point or plane) would not actually do any work in passing through, and in fact would retain its full potential to do work after having passed through.

What then is power density? Is it the amount of work that the energy passing through a unit area of the surface "could have done" had it been actually and fully "captured" at that surface? There is no real power at that surface, is there?

While power (and work) absolutely require energy, it strikes me as metaphysical whether all energy ultimately does do work and produce power. I don't think physics requires that, and it seems that lot of radiated energy is not obviously being transformed into work. So is energy without power really impossible, Cecil?

Been away from this for a longer bit than I'm comfortable mentioning.

Chuck. NT3G

Cecil Moore wrote:
> chuck wrote:
>
>> Technically, is it not energy that leaves the transmitter and is
>> received by the receiver?
>
>
> Technically, RF energy passing a point/plane during a unit
> of time is RF power (joules/sec). We can't have one without
> the other.

1394. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 01:58:59 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v2eb78uukil1a@corp.supernews.com>
Source record: 64455

chuck wrote:
> OK, I'm a little confused. Well, maybe more than a little.
>
> Starting with energy as the "ability to do work" and power as the rate
> at which energy is "transformed" into work, things quickly get muddy.

Power is the rate at which energy is transferred or used. Period.

> Energy passing through an imaginary surface (or point or plane) would
> not actually do any work in passing through, and in fact would retain
> its full potential to do work after having passed through.

Yes.

> What then is power density? Is it the amount of work that the energy
> passing through a unit area of the surface "could have done" had it been
> actually and fully "captured" at that surface?

No. Power is not an "amount of work", nor is power density. Power is the rate at which power is being transferred, so it can tell you only the rate at which work can be done, not the amount. The rate at which energy is being passed through a given cross sectional area of a surface is the power density. If you integrate the power going across the boundary for some period of time, you then know the amount of energy which has passed, and therefore the amount of work which can be done.

There is no real power at
> that surface, is there?

There is real energy passing that surface, and the rate at which it's passing is the power at that surface. So yes, there is.

> While power (and work) absolutely require energy, it strikes me as
> metaphysical whether all energy ultimately does do work and produce
> power. I don't think physics requires that, and it seems that lot of
> radiated energy is not obviously being transformed into work. So is
> energy without power really impossible, Cecil?

Cecil loves metaphysical arguments, so this is an ideal question for him.

> Been away from this for a longer bit than I'm comfortable mentioning.

Try finding a basic physics textbook at your local library. Most high school level texts should cover the topic adequately. For a more mathematical and quantitative treatment, a freshman level college text would be fine. A couple of the more popular ones are Resnick & Halliday, and Weidner & Sells. In the older editions of both, at least, electrical phenomena are covered in the second volume. However, power, work, and

energy aren't restricted to electricity so are covered in general terms in the first volume.

Roy Lewallen, W7EL

1395. Re: About Benjamin Franklin and Lightning

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 02:10:47 UTC
From: Steve Silverwood <kb6ojs@arrl.net>
Message-ID: <MPG.1e55619968aee74a9896d9@news-server.socal.rr.com>
Source record: 64456

In article <1sKdnXYDRdG9rE_eRVn-hw@comcast.com>, A.K01@comcast.net
says...
> > While researching lightning protection and grounding
> > in general I stumbled across the following:
> >
> > < http://www.physicstoday.org/vol-59/iss-1/p42.html >
> >
> > Benjamin Franklin's groundbreaking (pun fully intended)
> > work on the subject.
> >
> > john, N5DWI
>
> The USA Mint is releasing two silver dollar collectables on Franklin;
> one, as scientist, the other as statesman. The coins are available in
> either Silver Proof or uncirculated condition.

Both of which will conduct electricity just fine, I bet! ;-)

--

-- //Steve//

Steve Silverwood, KB6OJS
Fountain Valley, CA
Email: kb6ojs@arrl.net

1396. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 02:10:48 UTC
From: Steve Silverwood <kb6ojs@arrl.net>
Message-ID: <MPG.1e5561f3236efe079896da@news-server.socal.rr.com>
Source record: 64457

In article <49xAf.15283$F_3.8561@newssvr29.news.prodigy.net>,
mycall@arrl.net says...
> Reg Edwards wrote:
> > Yes, whatever the explanation, it's just a load of old wives' tales
> > and bafflegab.
>
> Quoting from the article: "If Comet had claimed that the CHA-250B
> was a world-beating miracle antenna, we would have blasted it with
> both barrels. Comet doesn't make such claims, however. Comet's
> literature merely states that the antenna will radiate a signal
> and provide a low SWR on all bands without the use of radials.
> In this respect, the CHA-250B performs as advertised. It is neither
> a miracle nor a fraud." (The article says it's about equal to a
> mobile whip antenna.)

At least Comet is being honest in its claims.

--

-- //Steve//

Steve Silverwood, KB6OJS
Fountain Valley, CA
Email: kb6ojs@arrl.net

1397. Re: demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 02:44:18 UTC
From: elgoog <nobody@frontier.net>
Message-ID: <slrndv2h02.127b.bit-bucket@shell.config.com>
Source record: 64458

> "Ron J" <bigschlong@gmail.com> wrote in message
> news:1139513435.028624.39500@g43g2000cwa.googlegroups.com...
>>
>> What is the difference between a demodulator and a detector?

It is an Off Topic question in an usenet ng focused on _antennas_ by yet
another drive-by Google poster

1398. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 03:49:43 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v2kqqkfvqt7ca@corp.supernews.com>
Source record: 64459

Correction:

Roy Lewallen wrote:
> . . .
> No. Power is not an "amount of work", nor is power density. Power is the
> rate at which power is being transferred, so it can tell you only the
> rate at which work can be done, not the amount. . .

I of course meant ". . .Power is the rate at which *energy* is being
transferred. . ."

Thanks, Owen!

Roy Lewallen, W7EL

1399. Re: demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 04:19:17 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1139890757.855341.190720@g44g2000cwa.googlegroups.com>
Source record: 64460

So sorry, I figured that the antenna folks would no more about it because after all, there are modulators and demodulators in our transmitter and receiver circuits. What else is interesting in the antenna world? Did the DLM and EH antenna combine into one? ;-)

1400. Re: diff in coils between c_poise and vertload ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 04:49:20 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <kjdIf.49$n67.28@edtnps89>
Source record: 64461

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11v1l5a65eqj0ef@corp.supernews.com...
> Frank wrote:
>> Thanks Danny, Interesting paper. It certainly points out problems with
>> silver plating. I must say I have never attempted to measure the Qs of
>> inductors with and without plating, but it is something to think about.
>> My point was more about the effects of copper oxide on inductor Q. It
>> makes me think that the best way to prevent the build up of oxide is to
>> use some kind of low-loss insulating material on the surface of the
>> copper.
>
> The problem is that copper oxide isn't necessarily what forms on copper --
> you can have copper chloride, sulfide, oxide, and perhaps other salts in
> various combinations and thicknesses depending on the environment.
> Likewise, silver will form all those salts.
>
> If a chemical coating is a very poor conductor or a very good conductor,
> it won't appreciably degrade the Q. What will degrade the Q is a coating
> of sufficient thickness of an intermediate conductivity. I've tried for
> years to find data on the various salts of both metals, and found only
> very few.
>
> But here's a quote from Chipman (_Theory and Problems of Transmission
> Lines_, 1968, p.81 - thanks to Wes, N7WS!):
>
> "For many years it was thought that silver was necessarily the best
> plating material, since silver has the highest conductivity of all metals.
> However, careful measurements have shown that the corrosion products on a
> silver surface in ordinary atmospheres have intermediate conductivity,
> while those on a copper surface have very low conductivity. The result is
> that high frequency currents in a copper conductor flow almost entirely in
> the copper, below the surface corrosion layers, and the conductor's
> effective conductivity is that of the copper. For a silver conductor, on
> the other hand, an appreciable fraction of the current flows in the
> corrosion material of intermediate conductivity (the corrosion products
> are generally oxides and sulfides) and the effective conductivity of the
> conductor as a whole may be substantially less than that of silver. If a
> silver surface is protected against corrosion, including oxidation, by an
> extremely thin layer of plated or evaporated gold or by a low-loss
> dielectric coating, a silver plated conductor will have the lowest
> possible distributed resistance."
>
> Chipman is obviously assuming a pure silver plating. As Danny's posted
> paper (http://k6mhe.com/n7ws/Plating.pdf) points out, "silver" platings

> are seldom pure silver, and are usually considerably less conductive than
> copper to begin with.
>
> So it's been known for at least several decades that silver plating
> degrades Q over the long run, for a couple of reasons. But myths die hard.
>
> Incidentally, I've found a couple of errors in the equations in the Fowler
> paper Danny posted (and which Wes N7WS kindly sent me years ago),
> apparently made during the copying of the original equations from their
> source. There seem to be some additional errors which I can't identify. If
> anyone knows where I might get a copy of the paper with the original
> equations, which is reference 10 (Astbury) in the Fowler paper, I'd be
> very appreciative. I've requested a copy of the paper through the local
> library, but it's likely to take a very long time to get. Perhaps some of
> the U.K. readers can make a suggestion, since the I.E.E. is the British
> equivalent of our I.E.E.E. I see from the I.E.E. web site that they're in
> the process of getting their older journals on line, but haven't finished
> the task. I don't mind at all paying a fee for it.
>
> Roy Lewallen, W7EL

Very interesting Roy. It makes me feel a lot better about eliminating my fixation with silver plating inductors. I was aware that there are different classes of copper oxides, but have only ever seen green and black oxides. I did find some data on oxide conductivity, but cannot locate it now. In fact you may have even been the source for this information.

Concerning the Fowler paper; Rudy Severn also published an article in QEX, for Nov/Dec 2000, where he briefly discusses the math. I believe there are also errors in his math, but have not looked at it for a year or so.

Frank

1401. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 04:51:38 UTC
From: Mr Fed UP <mrfedup@bellsouth.net>
Message-ID: <KidIf.38450$697.34010@bignews3.bellsouth.net>
Source record: 64462

Well for those of us who don't get around so well, it was nice to have a
product name to ask for.
Home Depot had an even smaller tube 1/2 oz and I got some steel wool to
buff things up first.
both less than $6. I probably would have been an hour finding that tiny
tube hanging in the store.
With more days behind me now than ahead.... and hoping my next antennas
will be new ones. It should last me till my end. Kinda like buying a tube
of water pipe compound
once you use it once the rest hangs around forever. LOL
Thanks for brand name to ask for. Saved lots of steps I can't spare these
days.

73 K4TWO Gary

"Jim - NN7K" <nn7kexk7zfg@NOSPAMsbcglobal.net> wrote in message
news:5sPHf.27484$Jd.10088@newssvr25.news.prodigy.net...
> Not to mention, that Home Depot (and Lowes), have even smaller bottles , 4
> oz,$6.00 , and think even 2 oz tubes, for even less! And a little goes a
> long way! Jim NN7K
>
> John Ferrell wrote:
>> A little more info:
>> http://lists.contesting.com/archives//cgi-bin/mesg.cgi?a=Towertalk&i=v01530500aeaf6ee61
189%40%5B207.65.48.146%5D
>>
>> On Sat, 11 Feb 2006 10:22:01 -0700, Larry Benko <xxw0qe@comcast.net>
>> wrote:
>>
>>
>>>Come on folks. This stuff is cheap compared to maintenance. A 1 minute
>>>web search finds Noalox at Home Depot stores for $8.95 for an 8oz.
>>>bottle. Penetrox is about the same price but not sold by Home Depot.
>>>
>>>Larry, W0QE
>>
>> John Ferrell W8CCW

1402. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 05:04:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dxdIf.12983$2O6.8504@newssvr12.news.prodigy.com>
Source record: 64463

chuck wrote:
> So is energy without power really impossible, Cecil?

Roy has already answered the basic question from an engineering viewpoint. Physicists often consider "power" to have a different definition than the engineering definition.

From the IEEE Dictionary: "power - The rate of generating, transferring, or using energy." (agrees with Roy)

From "University Physics" by Young and Freedman: "power is the time rate at which work is done." i.e. only the "using energy" portion of the engineering definition.

A certain physicist I know will argue that no work is being done in a lossless transmission line so there is no power there. He will say the existence of 100 watts at 1000 points along the line means there must be 100,000 watts in the line. He will say that a Bird wattmeter doesn't measure watts. He will say that a power generating plant doesn't generate power and a transmission line doesn't transfer power. He will also say that reflected power doesn't exist because it is not doing any work. He will say that for an EM wave in free space, ExH has the dimensions of watts but it isn't power because no work is being done.

As Roy indicated, engineers have a wider definition of "power". Energy without power is certainly possible, e.g. a DC battery with zero current. However, for a constant steady-state power level associated with an EM wave, energy and power are inseparable.

I like to use a one-second long lossless transmission line in some of my examples because it is impossible to hide the joules. A one-second long line with 200 watts forward power and 100 watts reflected power contains 300 joules that have been generated but have not reached the load. Since EM wave energy cannot stand still (or slosh around side to side) it is only logical to assume that 200 of those joules are in the forward wave and 100 of those joules are in the reflected wave both traveling at the speed of light.
--
73, Cecil http://www.qsl.net/w5dxp

1403. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 05:46:52 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <N8elf.57771$V.14814@fed1read04>
Source record: 64464

"J. Mc Laughlin" <jcm@power-net.net> wrote in message
news:11ucnvqhck36j37@corp.supernews.com...
> Foam is not a good idea. It can become very difficult to remove.
>
> Best is to use cooper wool. It will not rust nor flake and beasties
do
> not eat it. The stuff has become hard to find, however.

Marine supply stores sell bronze wool. I think the boaters use it for
cleaning brass fittings, presumably without scratching them. (I used it as
EMI packing for some leaky old pull-boxes.)

It may be close enough to copper wool to function the same.

1404. Re: db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 05:55:34 UTC
From: Joel Kolstad <JKolstad71HatesSpam@yahoo.com>
Message-ID: <11v2s9fsga187b@corp.supernews.com>
Source record: 64465

"Richard Harrison" <richardharrison@webtv.net> wrote in message
news:22778-43EE18F7-598@storefull-3258.bay.webtv.net...
> In the telephone industry, the most common reference level is one
> milliwatt.

Ditto the RF industry.

> Signal loss is common.

Pretty ubiquitous... something about the three laws of thermodynamics... ;-)

> Other dB units are easily contrived. There are dBw (dB referenced to one
> watt), dBk (dB referenced to one kilowatt), dBRAP (dB above reference
> acoustical power which is defined at 10 ro the minus 16 watts), etc,

The cable TV industry likes to use dBuV, for whatever odd reason.

1405. Re: comet vert?no radals

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 06:51:37 UTC
From: Rockinghorse Winner <rockinghorse@phreaker.net>
Message-ID: <1139899897.623486.61310@g14g2000cwa.googlegroups.com>
Source record: 64466

Quoth:
On 80m and 40m I have used a 33' vertical in the bed of my truck fed
with an "L" network and had good results. Leads me to believe that the

33' would work well with a modest ground system.

For 80 Meters:I have had decent results in end feeding (connect the
conductor and shield together to make a single conductor) a 40 meter
dipole xmission line into a grounded Pi network (your average MFJ
tuner); what you have is an end fed long wire with a really big
capacitance hat. Works best if the xmission line is 1/4 wave (i.e. 66
ft), but it's not critical. Also, the better the RF ground the better
the efficiency. And hey, it even works to some extent on 160, as long
as you keep the power output in check.

Rockinghorse
KI6AZS

1406. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 09:05:10 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <+WPYJQGG1Z8DFAQ5@ifwtech.co.uk>
Source record: 64467

chuck wrote:
>
>Energy passing through an imaginary surface (or point or plane) would
>not actually do any work in passing through, and in fact would retain
>its full potential to do work after having passed through.
>
>What then is power density?

The full name is power *flux* density, implying the rate at which energy
flows through unit area of a defined reference plane. SI units are
watts per square metre.

> Is it the amount of work that the energy passing through a unit area
>of the surface "could have done" had it been actually and fully
>"captured" at that surface?

Yes, that is the implication - except that it's the *rate* of energy
capture, ie the amount that could be captured from unit area in unit
time.

This is only a concept, because it isn't physically possible to
intercept the power flux through unit area of an EM wavefront - your
wave-catcher would disturb the wavefront around its edges, and the
shadow behind it would be filled in by diffraction. However, very
similar concepts apply to power flux in a transmission line - and in
that case you really *could* capture the exact steady-state power flux
at any point, by cutting the line and substituting a dummy load of the
correct impedance.

>There is no real power at that surface, is there?
>
That rather depends on your personal definitions of the words "real",
"at" and possibly "is" :-) I think you'd caught it correctly in the
previous paragraph... but if you squeeze too hard, the waves will slip
through your fingers.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1407. Receiving VMS (Vessel Monitoring Signals) from Inmarsat-C

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 12:12:28 UTC
From: Michael <ccc73571@vip.cybercity.dk>
Message-ID: <UOjIf.43$zu4.18@news.get2net.dk>
Source record: 64468

I have been playing around with receiving AIS (Automatic Identification System) signals. AIS is used on ships, it is used to send information about your position, etc via VHF to the surrounding ships. But know this started to get a bit boring. So know I wan to try to se if it is possibly to receive the VMS signals from Inmarsat-C. The VMS system is manly used on fishing vessels. On the ship there is a box with a gps and satellite tranciver. The position information is send each hour, to a land earth station, were it is distributed to the different authorities.

The first thing is to receive the signals. But also to decrypt the data can be complicated.

Any help or advices are welcome. Also if you have some good links to people ho have been dealing with projects like this, could be useful.

Cheers Michael

1408. FA: 1-Day-Left: Book: SPREAD SPECTRUM SYSTEMS: An Advanced Electronics/Math Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 12:26:27 UTC
From: Evan <evan@esmiaolwsd.com>
Message-ID: <140220060726274389%evan@esmiaolwsd.com>
Source record: 64469
Cross-posted to:
alt.ham-radio.marketplace,rec.radio.amateur.antenna,rec.radio.amateur.equipment,misc.industry.electronics.marketplace

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=4611984617

1409. Re: Anti-oxidant grease question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 12:26:45 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <q2i3v1h94i8vff8vs1igi1k52ge7gej834@4ax.com>
Source record: 64470

Re: With more days behind me now than ahead....
There are a lot of us with that condition!
Time and physical demands have become important considerations on
projects. And the increasing memory problems that make it harder than
ever to find where I put things...

On Mon, 13 Feb 2006 22:51:38 -0600, "Mr Fed UP"
<mrfedup@bellsouth.net> wrote:

>Well for those of us who don't get around so well, it was nice to have a
>product name to ask for.
>Home Depot had an even smaller tube 1/2 oz and I got some steel wool to
>buff things up first.
>both less than $6. I probably would have been an hour finding that tiny
>tube hanging in the store.
>With more days behind me now than ahead.... and hoping my next antennas
>will be new ones. It should last me till my end. Kinda like buying a tube
>of water pipe compound
>once you use it once the rest hangs around forever. LOL
>Thanks for brand name to ask for. Saved lots of steps I can't spare these
>days.
>
>73 K4TWO Gary
>
>
John Ferrell W8CCW

1410. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 13:00:46 UTC
From: chuck <nospam@nospam.net>
Message-ID: <2wkIf.18412$vU2.10689@newsread3.news.atl.earthlink.net>
Source record: 64471

Thank you all for your assistance. It will take a little time (and a
little work) for the difference in physicist/engineer definitions of
power to sink in.

Chuck, NT3G

Ian White GM3SEK wrote:
> chuck wrote:
>
>>
>> Energy passing through an imaginary surface (or point or plane) would
>> not actually do any work in passing through, and in fact would retain
>> its full potential to do work after having passed through.
>>
>> What then is power density?
>
>
> The full name is power *flux* density, implying the rate at which energy
> *flows through* unit area of a defined reference plane. SI units are
> watts per square metre.
>
>> Is it the amount of work that the energy passing through a unit area
>> of the surface "could have done" had it been actually and fully
>> "captured" at that surface?
>
>
> Yes, that is the implication - except that it's the *rate* of energy
> capture, ie the amount that could be captured from unit area in unit time.
>
> This is only a concept, because it isn't physically possible to
> intercept the power flux through unit area of an EM wavefront - your
> wave-catcher would disturb the wavefront around its edges, and the
> shadow behind it would be filled in by diffraction. However, very
> similar concepts apply to power flux in a transmission line - and in
> that case you really *could* capture the exact steady-state power flux
> at any point, by cutting the line and substituting a dummy load of the
> correct impedance.
>
>
>> There is no real power at that surface, is there?
>>
> That rather depends on your personal definitions of the words "real",
> "at" and possibly "is" :-) I think you'd caught it correctly in the
> previous paragraph... but if you squeeze too hard, the waves will slip
> through your fingers.

>
>
>
>

1411. Re: Receiving VMS (Vessel Monitoring Signals) from Inmarsat-C

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 13:33:26 UTC
From: jimmer <jimmer@provide.net>
Message-ID: <ylOdnfQ8Aai6QWzeRVn-sQ@provide.net>
Source record: 64472

Michael wrote:
> I have been playing around with receiving AIS (Automatic Identification
> System) signals. AIS is used on ships, it is used to send information about
> your position, etc via VHF to the surrounding ships. But know this started
> to get a bit boring. So know I wan to try to se if it is possibly to receive
> the VMS signals from Inmarsat-C. The VMS system is manly used on fishing
> vessels. On the ship there is a box with a gps and satellite tranciver. The
> position information is send each hour, to a land earth station, were it is
> distributed to the different authorities.
>
>
>
> The first thing is to receive the signals. But also to decrypt the data can
> be complicated.
>
> Any help or advices are welcome. Also if you have some good links to people
> ho have been dealing with projects like this, could be useful.
>
>
>
> Cheers Michael
>
>
Hello Michael
Sorry I can't answer your specific question about Inmarsat-C, but
perhaps the AIS group
at the following reflector can help:
http://groups.yahoo.com/group/shipplotter
/RGDS/ Jim

1412. What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 15:16:58 UTC
From: MRW <mr.whatever@gmail.com>
Message-ID: <1139930218.609008.164890@g43g2000cwa.googlegroups.com>
Source record: 64473

Happy Valentine's Day!

In terms of high powered transmitter (at least 500W), what is the best way to measure the output power from an antenna? I had pictured an in-line power sensor between the matching network and the antenna, but then at 500W I don't think I'll get close to the transmitter.

My friend actually proposed of finding out how long it will cook an egg if exposed to a certain output power and used that as a reference to approximate whether the power output. But then again I think you'd initially need to cook a couple of eggs in a controlled environment before a nice curve can be derived.

Also, during our engineering expo, a power company showcased their infrared tools to detect whether or not a power line is overloaded, shorted, or working normally. I was wondering if there is a similar tool used on antennas.

Thanks!

1413. Re: More ATAS-120 problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 16:22:15 UTC
From: Doc <ltdoc@yahoo.com>
Message-ID: <1139934061_8985@sp6iad.superfeed.net>
Source record: 64474

I would think that the radio is not recognizing the ATAS, so, try turning on
that ability. I know
nothing about the FT-857D, but would think there should be a 'menu' thingy
to turn the ATAS
feature on??
- 'Doc

1414. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 16:39:54 UTC
From: Bill Ogden <wogden@attglobal.net>
Message-ID: <zsnIf.17$yu5.6@fe11.lga>
Source record: 64475

I think the differences in this discussion go back to very fundamental definitions of power and energy (and power flux, which might not be the same as power). One set of terminology came from classical Thermodynamics and the other set from more general principles. More fun may be had dealing with the Second Law (which arrived from two very different viewpoints) and, for example, quantum effects in the same discussion. The discussion can quickly hinge on precise meanings of common words, such as "power."

Mixing terminology produces such wonderful concepts as measuring 100 watts flowing at 100 points in a transmission line and concluding that we have found 10,000 watts.

Bill
W2WO

1415. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 17:01:24 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dst2d4$d8f$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64376

The only way to determine power radiated from an antenna at HF is to calculate it from its dimensions.

To simplify matters, one can neglect ground and other losses. In which case radiated power will be about 99.99 percent of power input from the transmitter.

About 90 to 95 percent is what you would get - PROVIDED a way can be found to measure it. Otherwise just take the calculated figures as being near enough.

The directions and elevations in which power is radiated are, of course, the answers to yet more important questions.

Reg.

1416. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 17:10:40 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dst2ug$b3u$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64377

Why unnecessarily complicate matters with words.

Watts = Amps times Volts.

. . . . and that's all there is to it.

Reg.

1417. Re: Coax Losses ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 17:37:00 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dst4fs$3gp$1@engnntp2.cig.mot.com>
Source record: 64379

Bob,
If you are comfortable with Lew's explanation, this shouldn't confuse
things, but one minor additional concept.
Regarding your comment:
"Is it correct for me to say that the actual losses really aren't all
that
significant or meaningful, aqnd (sic) that a good receiver, which I
have,
can easily make up for them ?"

While on HF atmospheric noise usually dominates, loss before the
receiver can not always be "made up" by a receiver. If we go up to an
otherwise dead frequency, say, up around 20 or 30 MHz where/when there is no
significant atmospheric noise, we have a slightly different situation.
S/N is still the thing to consider, but the noise of the receiver front
end may now be the dominant noise. Now, consider that the loss of the
feedline causes a reduction of the signal, but, of course, has no affect on
the receiver noise. This feed line loss lowers the signal and degrades the
S/N ratio. The only way to get better is to either reduce the feedline loss
or reduce the receiver noise (noise figure).

73, Steve, K9DCI

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11usilchl6j771e@corp.supernews.com...
> You have the right idea. Signal/noise ratio is all that counts.
>
> When receiving HF, feedline loss almost never matters. The reason is
> that atmospheric noise is strong, and unless a receiver is exceptionally
> noisy and/or an antenna is exceptionally lossy, the atmospheric noise
> will be much greater than the receiver noise.
>
> The input to the receiver consists of the signal and atmospheric noise,
> to which the receiver adds its own noise. As long as the atmospheric
> noise is much greater than the receiver noise, you won't hear the
> receiver noise. Any attenuation in the antenna system will attenuate
> both the signal and the atmospheric noise equally, so the signal/noise
> ratio, which determines what you can hear, doesn't change. Any gain
> ahead of or within the receiver has the same effect.
>
> Atmospheric noise declines as the frequency increases, so it might be
> possible to start hearing some receiver noise over it as you approach 30
> MHz, particularly if your receiver is unusually noisy and/or the antenna
> system unusually lossy. As soon as receiver noise becomes audible over
> the atmospheric noise, the rules change. Then, attenuation ahead of the

> receiver will reduce the signal but not the receiver noise -- which is
> now the "noise" part of the signal/noise ratio --, so it *will* decrease
> the signal/noise ratio.
>
> There's a very simple test to determine whether reducing the loss will
> improve your ability to hear signals. Tune your receiver to a spot with
> no signals in the frequency band of interest. Turn up the volume so you
> can clearly hear the background noise. Then disconnect your antenna(*).
> If the noise decreases, it means that atmospheric noise is dominating,
> so reducing loss won't help the signal/noise ratio. If the noise doesn't
> decrease, you're hearing receiver noise with the antenna connected and
> you'd benefit by reducing losses ahead of the receiver. You'll probably
> find that the noise will decrease by quite a few dB when you disconnect
> the antenna, and this represents the amount of loss you can add before
> your ability to hear signals suffers.
>
> When receiving HF, about the only way you can improve your signal/noise
> ratio is by using a directional antenna. This will reduce the
> atmospheric noise coming from unneeded directions. Particular kinds of
> antennas can also improve the signal/noise ratio if the dominant noise
> is man made and coming from a nearby source.
>
> (*) In a really marginal case, you might need to replace the antenna
> with a dummy load for this test -- an ordinary small 47 or 51 ohm
> resistor will suffice -- but it usually isn't necessary.
>
> Roy Lewallen, W7EL
>
> Robert11 wrote:
> > Hi,
> >
> > Just getting started with all of this, and want to say a quick thanks to
> > everyone for all the help.
> >
> > Another question:
> >
> > Am I interpreting this more or less correctly:
> >
> > Looking at all the different types of coax available.
> > Will be for a receive-only HF antenna.
> > Antenna will have to be in the backyard about 150 feet or so from house.
> >
> > The db losses are beginning to add up; at the upper limit of my interest
of
> > 30 MHz
> > we are getting close to around 3.5 db or so.
> >
> > Is it correct for me to say that the actual losses really aren't all
that
> > significant or meaningful,

> > and that a good receiver, which I have, can easily make up for them ?
> >
> > That the only thing of real concern would be the S/N ?
> >
> > What are the caveats to my statement above ?
> >
> > Thanks,
> > Bob
> >
> >
> >

1418. Re: adding some extra wire to existing antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 18:07:07 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1139940427.023939.113680@z14g2000cwz.googlegroups.com>
Source record: 64378

I am replying to the group. I have done some MORE research and I now
believe that the lenth should be near 51.5ft.! NOT the 65feet that I
was going to add. We are to get some warm weather soon. Maybe then I
can put the measurements to the "test"

1419. Re: help appreciated with unusual j pole feed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 18:52:20 UTC
From: fmmck@aol.com
Message-ID: <fmmck-1402061352200001@aca8cd90.ipt.aol.com>
Source record: 64380

In article <dsitdnopv1@news8.svr.pol.co.uk>, "kevin"
<khorseman@lineone.net> wrote:

> hi there, i'm looking for some help with a j pole antenna, it's actually a
> vhf marine antenna so i hope it will be ok to ask here.

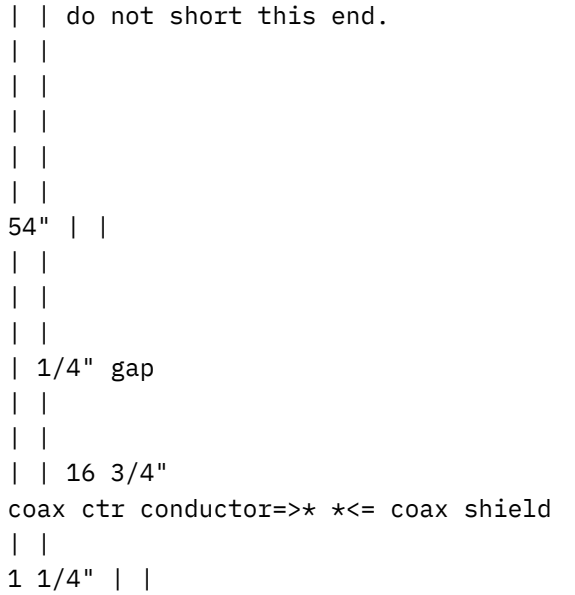
Kevin-

One version of the J-Pole antenna has the cable connected an inch or two
above the connection between the two vertical rods. The following article
from my archives, shows how it could be connected, except it is based on
Television Twin Lead instead of the two rods yours has. If you use a
mono-spaced font like Courier, it should be clear. The conductor above
the 1/4" gap is not essential, it just comes with the twinlead!

Fred

2M Jpole with 300 ohm twin lead
From: kinsman@ektools.UUCP (Andrew A. Kinsman)
Newsgroups: rec.ham-radio
Organization: Eastman Kodak, Dept. 47, Rochester NY

The following is a description of a J-Pole antenna made from 300 ohm
TV twin-lead. Quite a few of the hams in the area have successfully
built one or more of these antennas. They have quite a few advantages
which include improved performance for 2-meter HTs, portability, and
last, but never least, they are inexpensive.



-*-
solder the twin leads together at bottom

1. Start with 54 1/2" of TV twin lead (foam core does not work as well)
2. Strip 1/2" of insulation at bottom and solder wires together.
3. Measure 1 1/4" from soldered wires and strip insulation on both sides. This is the solder point for a coax feedline.
4. Measure 16 3/4" from bottom and cut out 1/4" notch on one side.
5. Feed with a length of RG58U coax. Tape coax at feedpoint to the twin lead for strength and weather protection.

I have also attached an alligator clip to the plastic on the top of the antenna in order to conveniently hang it. I am successfully using one in my attic to avoid any CCNR problems. I have another that I can take with me camping, sailing, etc.

This design has appeared on many BBSs and in club newsletters; the earliest reference that I know of is a Jan. 1984 D.A.R.C. antenna article by James Burks, KA5QYV.

Enjoy,
N6UBM

1420. Re: demodulator & detector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 19:16:21 UTC
From: Mike Coslo <mjc5remove@psu.edu>
Message-ID: <43F22C85.7080402@psu.edu>
Source record: 64381

Ron J wrote:
> So sorry, I figured that the antenna folks would no more about it
> because after all, there are modulators and demodulators in our
> transmitter and receiver circuits. What else is interesting in the
> antenna world? Did the DLM and EH antenna combine into one? ;-)
>

Not to worry, Ron, cuz his post was just another drive-by flame from a poster who prefers to remain anonymous.

Most who do try to remain anonymous have a good reason - and it's not the one that they give ;^)

- 73 de Mike KB3EIA -

1421. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 19:40:08 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <smqIf.28773$Jd.16306@newssvr25.news.prodigy.net>
Source record: 64382

Reg Edwards wrote:
> Watts = Amps times Volts.

Only for DC or in-phase AC/RF.

Volt-Amps = Amps times Volts = SQRT(watts^2 + vars^2)
Watts = Amps times Volts times cos(A) = real power
Vars = Amps times Volts times sin(A) = reactive power
Reference: "Alternating Current Circuits", Kerchner/Corcoran,
3rd edition, (C) 1938, 1943, 1951.
--
73, Cecil http://www.qsl.net/w5dxp

1422. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 20:09:21 UTC
From: richardharrison@webtv.net
Message-ID: <7288-43F238F1-1133@storefull-3251.bay.webtv.net>
Source record: 64383

Reg, G4FGQ wrote:
"Otherwise just take the calculated figures as being near enough."

Standard AM broadcast stations usually do that once their performance has been proved by field measurements.

A point in the system just before the power from the transmitter branches out to the towers in an antenna array is designated as the "common point" of the system. Here the impedance and current are measured to determine the power radiated by the system. Losses are considered insignificant, An r-f ammeter permanently installed here constantly monitors the station`s power.

Best regards, Richard Harrison, KB5WZI

1423. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 20:30:58 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v4fg75rhomo98@corp.supernews.com>
Source record: 64384

Reg Edwards wrote:
> Why unnecessarily complicate matters with words.
>
> Watts = Amps times Volts.
>
> . . . . and that's all there is to it.
> ----

Only if you're talking about instantaneous values, which people seldom do (but should). At any instant of time, the power at a point (that is, the rate of energy flow past the point) is the volts time the amps at that point at that instant. But if you look at, say, the energy moving between the inductor and capacitor in a high Q parallel resonant LC circuit, you'll find that nearly all the energy moving in one direction moves back on the alternate half cycle. That is, the instantaneous value of the power is positive for one half cycle and negative for the other. The average power is therefore relatively small, much smaller than the product of RMS volts times RMS amps. In the extreme theoretical case of a lossless circuit, the average power is zero, so there's no net long term energy flow even though both V and I can be very large.

Roy Lewallen, W7EL

1424. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 21:03:05 UTC
From: richardharrison@webtv.net
Message-ID: <6236-43F24589-857@storefull-3255.bay.webtv.net>
Source record: 64386

Roy, W7EL wrote:
"The average power is therefore relatively small, much smaller than the ptoduct of RMS volts times RMS amps."

I have not read the thread, but I recall from some old memory store that rms volts times rms amps is one of the definitions of "average power".

Best regards, Richard Harrison, KB5WZI

1425. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 21:03:39 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <48g4v116grjnbr4p6ducdptdvmi7cv67rk@4ax.com>
Source record: 64385

On Tue, 14 Feb 2006 17:01:24 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>The only way to determine power radiated from an antenna at HF is to
>calculate it from its dimensions.
>
>To simplify matters, one can neglect ground and other losses. In which
>case radiated power will be about 99.99 percent of power input from
>the transmitter.

Reg, I may be misuderstanding what you mean by "power input from the
transmitter", is it the same as the transmitter power output as
measured at the transmitter?

As you know, ground losses can be a major loss component in the case
of some types of antennas, for instance short Marconi type antennas.

If "other losses" as used above includes transmission line losses, it
is not infrequent that we see people describe configurations where
transmission line losses are in the range 10dB to 20dB (ie radiated
power less than 10% to 1% of the transmitter output respectively).

Owen
--

1426. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 21:25:32 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ehi4v118nct8m1ci06ca0u3d78e6psmlof@4ax.com>
Source record: 64387

On Tue, 14 Feb 2006 15:03:05 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>I have not read the thread, but I recall from some old memory store that
>rms volts times rms amps is one of the definitions of "average power".

Only in a DC circuit, or a purely resistive load in an AC circuit.

Owen
>
>Best regards, Richard Harrison, KB5WZI
--

1427. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 21:29:09 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <bki4v1hd1uikbbd6g2mlmasl9d018eosv5@4ax.com>
Source record: 64388

On Tue, 14 Feb 2006 21:25:32 GMT, Owen Duffy <owen@no.where> wrote:

>On Tue, 14 Feb 2006 15:03:05 -0600, richardharrison@webtv.net (Richard
>Harrison) wrote:
>
>
>>I have not read the thread, but I recall from some old memory store that
>>rms volts times rms amps is one of the definitions of "average power".
>
>Only in a DC circuit, or a purely resistive load in an AC circuit.

I shouldn't use that work ONLY!!!

Only in a DC circuit, or a in an AC circuit (loop) where the current
and voltage measured are in phase. In an AC circuit where the voltage
and current are not in phase you must multiply the product of the RMS
voltage and RMS current by the cosine of the phase difference to get
real power (which is what I think you mean by "average power").

Owen
--

1428. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 22:10:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v4lao6jo4i89b@corp.supernews.com>
Source record: 64389

Richard Harrison wrote:
> Roy, W7EL wrote:
> "The average power is therefore relatively small, much smaller than the
> ptoduct of RMS volts times RMS amps."
>
> I have not read the thread, but I recall from some old memory store that
> rms volts times rms amps is one of the definitions of "average power".

Time to dust off your old circuit analysis text, then. Pay special attention to the discussion of "imaginary power" or "vars".

Roy Lewallen, W7EL

1429. WinCAP Wizard - VOACAP - freeware interface and tools

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 22:10:48 UTC
From: J Tabor <denews@taborsoft.com>
Message-ID: <11v4lbodor2aoab@corp.supernews.com>
Source record: 64390

Greetings,

You are invited to download and use the new version of WinCAP Wizard. The default download is known as QSL-ware. Which basically means freeware. <G>

This QSL-ware version provides unlimited point-to point and NCDXF beacon predictions, prefix search, numerous prediction views and more.

www.taborsoft.com

The registered version adds coverage analysis and user batch prediction modes. A 60-day trial key is available upon request.

If you use a competing tool, not to worry, they can surely add a few of the new features. <VBG>

Cheers,
KU5S
--
email sent to: denews@taborsoft.com
is discarded without being seen.
Sorry for any inconvenience.

1430. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 22:15:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v4lk1dlthe02f@corp.supernews.com>
Source record: 64391

Owen Duffy wrote:
>
> I shouldn't use that work ONLY!!!
>
> Only in a DC circuit, or a in an AC circuit (loop) where the current
> and voltage measured are in phase. In an AC circuit where the voltage
> and current are not in phase you must multiply the product of the RMS
> voltage and RMS current by the cosine of the phase difference to get
> real power (which is what I think you mean by "average power").
>

Of course, that only works when the voltage and current are sinusoidal and of the same frequency. More generally, the average power is 1/T times the integral over T of v(t) * i(t) dt, where T is the interval over which it's being averaged. If the waveforms are periodic, an interval of one cycle can be used for T.

Roy Lewallen, W7EL

1431. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 23:11:55 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <njo4v1196uao1i18i79001c6t200ndbtr8@4ax.com>
Source record: 64392

On Tue, 14 Feb 2006 14:15:20 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Owen Duffy wrote:
>>
>> I shouldn't use that word ONLY!!!
>>
>> Only in a DC circuit, or a in an AC circuit (loop) where the current
>> and voltage measured are in phase. In an AC circuit where the voltage
>> and current are not in phase you must multiply the product of the RMS
>> voltage and RMS current by the cosine of the phase difference to get
>> real power (which is what I think you mean by "average power").
>>
>
>Of course, that only works when the voltage and current are sinusoidal
>and of the same frequency.

Yes, implied by the "in phase" condition.

Thinking that through further brings a third case to the "ONLY"
conditions, and that is if the circuit is entirely resistive (eg real
power is the product of Vrms and Irms if the waveform is square and
the circuit contains only resistances).

> More generally, the average power is 1/T
>times the integral over T of v(t) * i(t) dt, where T is the interval
>over which it's being averaged. If the waveforms are periodic, an
>interval of one cycle can be used for T.
>
>Roy Lewallen, W7EL
--

1432. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 23:22:05 UTC
From: Dave <noone@nowhere.com>
Message-ID: <elWdnWc15uW9-2_enZ2dnUVZ_tmdnZ2d@crocker.com>
Source record: 64393

there is no good way to measure the output power from an antenna. it is easy to measure the input power with a meter before the antenna... and 500w is not 'high power' to most of us, that is only 1/3 of what hams can legally run and we have to measure amplifier power all the time so there are lots of meters out there. Normally the best you can do is an estimate from computer modeling and then maybe back it up with a couple field strength measurements if you can set up a controlled enough test environment.

using infra red images of antennas might be interesting, but not very practical. it would basically only show you the temperature of the conductors and maybe help you find bad joints or really lossy high current spots, but it won't give you a power value.

"MRW" <mr.whatever@gmail.com> wrote in message
news:1139930218.609008.164890@g43g2000cwa.googlegroups.com...
> Happy Valentine's Day!
>
> In terms of high powered transmitter (at least 500W), what is the best
> way to measure the output power from an antenna? I had pictured an
> in-line power sensor between the matching network and the antenna, but
> then at 500W I don't think I'll get close to the transmitter.
>
> My friend actually proposed of finding out how long it will cook an egg
> if exposed to a certain output power and used that as a reference to
> approximate whether the power output. But then again I think you'd
> initially need to cook a couple of eggs in a controlled environment
> before a nice curve can be derived.
>
> Also, during our engineering expo, a power company showcased their
> infrared tools to detect whether or not a power line is overloaded,
> shorted, or working normally. I was wondering if there is a similar
> tool used on antennas.
>
> Thanks!
>

1433. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 23:39:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v4qgt4om34v85@corp.supernews.com>
Source record: 64394

Owen Duffy wrote:
> . . .
> Thinking that through further brings a third case to the "ONLY"
> conditions, and that is if the circuit is entirely resistive (eg real
> power is the product of Vrms and Irms if the waveform is square and
> the circuit contains only resistances).

If you look at the definition of average (as in my previous posting), you'll see that when the load is purely resistive, average power = 1/T * the integral over T of v^2(t) / R dt or 1/T * the integral over T of i^2(t) * R dt, for any waveform. And using the definition of RMS(*), you can see that this is exactly Vrms^2 / R or Irms^2 * R respectively, again for any waveform. So Pavg = Vrms * Irms for any waveform, as long as (and only as long as) the load is purely resistive. Again, the average and RMS values can be calculated for any interval (as long as they're the same), but a single cycle is adequate to determine the long-term average and RMS values of periodic waveforms.

(*) frms = Sqrt(avg(f^2(t))) = Sqrt(1/T * integral over T of f^2(t) dt)

Roy Lewallen, W7EL

1434. Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 23:46:54 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <5eudnRTUMuRG9m_eRVn-qA@comcast.com>
Source record: 64395

I am considering installing a stealth antenna on the porch of my first-floor apartment and would like some suggestions. Here's the deal.

-- First floor apartment.
-- Porch is a concrete slab, 10 X 10.
-- The ceiling of the porch is the underside of the balcony of the apartment above me. It's all wooden.
-- Thus, the ceiling of my porch is 10 X 10, wood.

How about I build a 40-meter dipole, 67 feet long, feed with coax and a balun in the center. Attach the coax and the balun to one of the corner posts that supports the balcony above my porch. Run the two sides of the dipole in opposite directions, but, instead of stretching the wire straight as I normally would if hanging the dipole from trees, towers, etc., what if I run the wires around the underside of the balcony deck? This would give me a horizontal loop made up of two pieces of wire, each 33.5 feet long, with the loop being 10 feet on a side, thus, each end of the dipole would run around underneath the balcony deck and come back almost to the center of the dipole.

That is -- the balun would be secured to one of the corner posts. One piece of wire, 33.5 feet long would run straight out from the balun along the 2 X 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run another 10 feet and make another 90-deg turn (30 ft), and end up 3.5 feet after the third turn. The other end of the dipole would do the same thing, only run in the opposite direction. At the balun, the two wires making up the dipole would run at a 90-deg angle to each other. And, the two wires would overlap (or be only a few inches apart) for 27 feet of their length.

I probably didn't explain this idea too well but I'd like to hear some suggestions. Thanks.

1435. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-14 23:51:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v4r79bmunnb4@corp.supernews.com>
Source record: 64396

This is probably a good place to mention that people interested in the relationship between RMS voltage and current and average power (and the uselessness of the RMS value of power) can find an explanation at http://eznec.com/Amateur/RMS_Power.pdf. It doesn't use any mathematics more advanced than a square and square root, so any amateur should be able to understand it.

Some time ago I was surprised to find this to be one of the most frequently visited pages at my web site, apparently due to a link in the Wikipedia entry for RMS.

Roy Lewallen, W7EL

1436. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 00:15:09 UTC
From: jgboyles@aol.com
Message-ID: <1139962509.133178.324340@g44g2000cwa.googlegroups.com>
Source record: 64397

MRW wrote:
> Happy Valentine's Day!
>
> In terms of high powered transmitter (at least 500W), what is the best
> way to measure the output power from an antenna? I had pictured an
> in-line power sensor between the matching network and the antenna, but
> then at 500W I don't think I'll get close to the transmitter.
>
> My friend actually proposed of finding out how long it will cook an egg
> if exposed to a certain output power and used that as a reference to
> approximate whether the power output. But then again I think you'd
> initially need to cook a couple of eggs in a controlled environment
> before a nice curve can be derived.
>
> Also, during our engineering expo, a power company showcased their
> infrared tools to detect whether or not a power line is overloaded,
> shorted, or working normally. I was wondering if there is a similar
> tool used on antennas.
>
> Thanks

To measure the output from an antenna, measure the input as others
have posted. What you should really be interested in is the increase
in signal power at your target receiver when increasing from power1 to
power2.
To really observe antenna radiated power involves incasing the
antenna in a sphere, and calculating the power density at the edges of
the sphere. I am not an antenna engineer, so could be wrong, but this
involves triple integerals.
About the best a ham can do is an FSM and a modelling program plus an
idea of where you would like to talk to.
Gary N4AST

1437. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 01:02:38 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <11v4vdvs7jeerab@corp.supernews.com>
Source record: 64398

Joe S. wrote:
> I am considering installing a stealth antenna on the porch of my first-floor
> apartment and would like some suggestions. Here's the deal.
>
> -- First floor apartment.
> -- Porch is a concrete slab, 10 X 10.
> -- The ceiling of the porch is the underside of the balcony of the apartment
> above me. It's all wooden.
> -- Thus, the ceiling of my porch is 10 X 10, wood.
>
> How about I build a 40-meter dipole, 67 feet long, feed with coax and a
> balun in the center. Attach the coax and the balun to one of the corner
> posts that supports the balcony above my porch. Run the two sides of the
> dipole in opposite directions, but, instead of stretching the wire straight
> as I normally would if hanging the dipole from trees, towers, etc., what if
> I run the wires around the underside of the balcony deck? This would give
> me a horizontal loop made up of two pieces of wire, each 33.5 feet long,
> with the loop being 10 feet on a side, thus, each end of the dipole would
> run around underneath the balcony deck and come back almost to the center of
> the dipole.
>
> That is -- the balun would be secured to one of the corner posts. One piece
> of wire, 33.5 feet long would run straight out from the balun along the 2 X
> 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run another 10 feet and
> make another 90-deg turn (30 ft), and end up 3.5 feet after the third turn.
> The other end of the dipole would do the same thing, only run in the
> opposite direction. At the balun, the two wires making up the dipole would
> run at a 90-deg angle to each other. And, the two wires would overlap (or
> be only a few inches apart) for 27 feet of their length.
>
> I probably didn't explain this idea too well but I'd like to hear some
> suggestions. Thanks.
>
>
What ever you do make sure that your neighbors upstairs aren't exposed
to excessive RF Radiation.

Dave WD9BDZ

1438. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 03:14:40 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <40xIf.58600$V.39941@fed1read04>
Source record: 64399

"MRW" <mr.whatever@gmail.com> wrote in message
news:1139930218.609008.164890@g43g2000cwa.googlegroups.com...
> Happy Valentine's Day!
>
> In terms of high powered transmitter (at least 500W), what is the best
> way to measure the output power from an antenna? I had pictured an
> in-line power sensor between the matching network and the antenna, but
> then at 500W I don't think I'll get close to the transmitter.
>
> My friend actually proposed of finding out how long it will cook an egg
> if exposed to a certain output power and used that as a reference to
> approximate whether the power output. But then again I think you'd
> initially need to cook a couple of eggs in a controlled environment
> before a nice curve can be derived.
>
> Also, during our engineering expo, a power company showcased their
> infrared tools to detect whether or not a power line is overloaded,
> shorted, or working normally. I was wondering if there is a similar
> tool used on antennas.
>
> Thanks!
>

The other answers aren't wrong, but measuring power within the antenna/transmission line system can be misleading because not all the power measured there is actually radiated. Some is dissipated as heat in the matching unit (if used) or reflected back to the transmitter. Radiated power doesn't go in all directions, either.

The output power from an antenna is often described as such-and-such "field strength" at some standard distance and it is determined only with expensive test equipment. Because of directional effects, making just one measurement often isn't enough.

You set up equipment at a fixed distance from the antenna (perhaps a mile) with a special receiver, one with a meter calibrated for input signal strength at the antenna terminals. A spectrum analyzer may also be used, but you have to be very careful about overloading its wide-open front end, not with your transmitter, necessarily, but with every other darn thing in town.

You feed it with a particular test antenna, one which will be supplied with a set of calibration charts. Read the microvolts from the receiver, correct for cable losses and use the calibration charts for the antenna to yield the signal strength in standard units, like microvolts/meter. I do not remember

the antenna names, but I do remember one receiver was the Singer NM-25.
That mama weighed about sixty pounds.

If you go to a vendor site, like www.tucker.com, you can appreciate the
variety of equipment available for quantitative measurements.

I worked as a certified EMI Engineer from 1988 until 2002 and I hope I have
provided some useful information.

1439. Re: What's the best way to measure radiated power from an antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 03:24:55 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <baxIf.48075$dW3.46044@newssvr21.news.prodigy.com>
Source record: 64400

Sal M. Onella wrote:
> The other answers aren't wrong, but measuring power within the
> antenna/transmission line system can be misleading because not all the power
> measured there is actually radiated. Some is dissipated as heat in the
> matching unit (if used) or reflected back to the transmitter. Radiated
> power doesn't go in all directions, either.

When we did 75m mobile shootouts, we measured the forward power
and reflected power and assumed the net power was reaching the
antenna. We measured the field intensity about 1/2 mile away
using a ferrite rod pickup coil. Of course, all antennas were
loaded vertically polarized monopoles with approximately
omnidirectional characteristics.
--
73, Cecil http://www.qsl.net/w5dxp

1440. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 03:35:43 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <9O2dnWkpTtrkPG_eRVn-vQ@comcast.com>
Source record: 64401

"David G. Nagel" <nagel@core.com> wrote in message
news:11v4vdvs7jeerab@corp.supernews.com...
> Joe S. wrote:
>> I am considering installing a stealth antenna on the porch of my
>> first-floor apartment and would like some suggestions. Here's the deal.
>>
>> -- First floor apartment.
>> -- Porch is a concrete slab, 10 X 10.
>> -- The ceiling of the porch is the underside of the balcony of the
>> apartment above me. It's all wooden.
>> -- Thus, the ceiling of my porch is 10 X 10, wood.
>>
>> How about I build a 40-meter dipole, 67 feet long, feed with coax and a
>> balun in the center. Attach the coax and the balun to one of the corner
>> posts that supports the balcony above my porch. Run the two sides of the
>> dipole in opposite directions, but, instead of stretching the wire
>> straight as I normally would if hanging the dipole from trees, towers,
>> etc., what if I run the wires around the underside of the balcony deck?
>> This would give me a horizontal loop made up of two pieces of wire, each
>> 33.5 feet long, with the loop being 10 feet on a side, thus, each end of
>> the dipole would run around underneath the balcony deck and come back
>> almost to the center of the dipole.
>>
>> That is -- the balun would be secured to one of the corner posts. One
>> piece of wire, 33.5 feet long would run straight out from the balun along
>> the 2 X 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run another
>> 10 feet and make another 90-deg turn (30 ft), and end up 3.5 feet after
>> the third turn. The other end of the dipole would do the same thing, only
>> run in the opposite direction. At the balun, the two wires making up the
>> dipole would run at a 90-deg angle to each other. And, the two wires
>> would overlap (or be only a few inches apart) for 27 feet of their
>> length.
>>
>> I probably didn't explain this idea too well but I'd like to hear some
>> suggestions. Thanks.
>>
>>
> What ever you do make sure that your neighbors upstairs aren't exposed to
> excessive RF Radiation.
>
> Dave WD9BDZ

Thanks for the warning but this is not much of a consideration. The
apartment is rented full-time by a local corporation and it's used

occasionally, a few days at a time, by traveling executives who generally come to town, check in late at night, leave early in the morning, and put in long days while they are here and never go out onto the balcony.

1441. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 05:22:59 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns976AD9851DAF9doldridgsprintca@64.59.135.159>
Source record: 64402

"Joe S." <anon@mous.com> wrote in
news:5eudnRTUMuRG9m_eRVn-qA@comcast.com:

> I am considering installing a stealth antenna on the porch of my
> first-floor apartment and would like some suggestions. Here's the
> deal.
>
> -- First floor apartment.
> -- Porch is a concrete slab, 10 X 10.
> -- The ceiling of the porch is the underside of the balcony of the
> apartment above me. It's all wooden.
> -- Thus, the ceiling of my porch is 10 X 10, wood.
>
> How about I build a 40-meter dipole, 67 feet long, feed with coax and
> a balun in the center. Attach the coax and the balun to one of the
> corner posts that supports the balcony above my porch. Run the two
> sides of the dipole in opposite directions, but, instead of stretching
> the wire straight as I normally would if hanging the dipole from
> trees, towers, etc., what if I run the wires around the underside of
> the balcony deck? This would give me a horizontal loop made up of two
> pieces of wire, each 33.5 feet long, with the loop being 10 feet on a
> side, thus, each end of the dipole would run around underneath the
> balcony deck and come back almost to the center of the dipole.
>
> That is -- the balun would be secured to one of the corner posts. One
> piece of wire, 33.5 feet long would run straight out from the balun
> along the 2 X 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run
> another 10 feet and make another 90-deg turn (30 ft), and end up 3.5
> feet after the third turn. The other end of the dipole would do the
> same thing, only run in the opposite direction. At the balun, the two
> wires making up the dipole would run at a 90-deg angle to each other.
> And, the two wires would overlap (or be only a few inches apart) for
> 27 feet of their length.
>
> I probably didn't explain this idea too well but I'd like to hear some
> suggestions. Thanks.

The real problem is going to be that winding the antenna back on itself
like that has the effect of lowering its radiation resistance. I ran it
up in Mininec and it comes out to less than 1 ohm at resonance. At that
rate, you'd be better off making a dipole of two screwdriver antennas
back to back.

--
Dave Oldridge+

ICQ 1800667

1442. 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 08:11:03 UTC
From: gsm@mendelson.com
Message-ID: <slrndv5o0l.jp4.gsm@cable.mendelson.com>
Source record: 64403

Hi, the early '90s ARRL handbooks had construction information for a simple folded dipole made of 300 oHm twinlead. The article was not in the '96 edition or later.

The antenna was made of 300 ohm twinlead. It was fed in the center by a 300 ohm twinlead feeder to a matching capacitor which made it aproximate 50 ohms. The capacitor could be either a regular capacitor (I used silver mica WWII surplus) or a "stub" of more twinlead.

At the end of the feed line, which was part of the antenna, you could attach it directly to a 50 omh unbalanced transciever or a 50 ohm coax of any length.

The length of the antenna was one half wavelength without the velocity factor and then shorted at the wavelength points compensating for the velocity factor.

For example, if it was 10 meters long for a 20 meter dipole, the shorts were about 4 meters from the center for twinlead with a velocity factor of 0.8.

If anyone has a copy of the article and could scan it for me, I'd appreicate it, or even better yet, a pointer to an online version of it.

Thanks in advance and 73,

BTW, if you are also in Israel and asking yourself "where does he get the twinlead"? I don't. I brought it with me when I moved here in '96.

Geoff.

--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Visit my 'blog at http://geoffstechno.livejournal.com/

1443. Orthogonality relation between modes in Dielectric-Lined Circular Waveguide (or with concentric dielectric layers)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 08:23:57 UTC
From: skatsis@ee.duth.gr
Message-ID: <1139991837.392371.176510@g14g2000cwa.googlegroups.com>
Source record: 64404

I am working on dielectric-lined circular waveguides and I am searching
for a reference on the orthogonality of modes. The only thing that I
found is in the link below (at the bottom of the message)
but I am looking for something with more details.

Assume that we have a uniform cylindrical waveguide with N concentric
dielectric layers [my case of interest is when N=2, and we have the
waveguide with a thin inner dielectric layer (second layer N=2) and the
rest is vacum (air-> N=1-> first "layer")].
I need an orthogonality relation that applies between any two modes.
The fact is that I already have found an orthogonality relation (see
the link below) but I need a more detailed analysis.

http://www.bnl.gov/ATF/experiments/Dielectric/2-Theory_of_Wakes.pdf

IF ANYONE KNOWS SOMETHING PLEASE ANSWER THIS MESSAGE.

1444. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 10:54:17 UTC
From: Iain Kelly <no.spam@m0pcb.co.uk>
Message-ID: <dsv18q$h9g$1@pump1.york.ac.uk>
Source record: 64405

Geoffrey S. Mendelson wrote:
> Hi, the early '90s ARRL handbooks had construction information for a
> simple folded dipole made of 300 oHm twinlead. The article was not in
> the '96 edition or later.
>
> The antenna was made of 300 ohm twinlead. It was fed in the center by
> a 300 ohm twinlead feeder to a matching capacitor which made it aproximate
> 50 ohms. The capacitor could be either a regular capacitor (I used silver
> mica WWII surplus) or a "stub" of more twinlead.
>
> At the end of the feed line, which was part of the antenna, you could
> attach it directly to a 50 omh unbalanced transciever or a 50 ohm coax
> of any length.
>
> The length of the antenna was one half wavelength without the velocity
> factor and then shorted at the wavelength points compensating for
> the velocity factor.
>
> For example, if it was 10 meters long for a 20 meter dipole, the shorts
> were about 4 meters from the center for twinlead with a velocity factor
> of 0.8.
>
> If anyone has a copy of the article and could scan it for me, I'd
> appreicate it, or even better yet, a pointer to an online version
> of it.
>
> Thanks in advance and 73,
>
> BTW, if you are also in Israel and asking yourself "where does he get
> the twinlead"? I don't. I brought it with me when I moved here in '96.
>
> Geoff.
>

Sounds like a scaled up version of an antennas I built from a design
called 'The Mighty Wide 6M Dipole'... The design came from the internet
I think, I seem to recall G0IER published it on his website. I have also
seen the scaling information for other bands...

Hope that's of some help...

--
73, Iain M0PCB/P

1445. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 12:51:05 UTC
From: gsm@mendelson.com
Message-ID: <slrndv68gm.od7.gsm@cable.mendelson.com>
Source record: 64406

Iain Kelly wrote:
> Sounds like a scaled up version of an antennas I built from a design
> called 'The Mighty Wide 6M Dipole'... The design came from the internet
> I think, I seem to recall G0IER published it on his website. I have also
> seen the scaling information for other bands...

Thanks, but it led to some questions.

Here is the web page I found for it: http://www.qsl.net/g3pto/6m_dipole.html

From my calculations, assuming his center frequency was 51 mHz, he used a size factor of 142.494 for the total length of the antenna. This seems odd to me, as it would translate to 467.5 feet which is number I've never seen before. Either something is amiss in my calculations, or he used a different center frequency or just an unusual number.

The shorted length makes perfect sense, the ratio of total to shorted is .8425 which is a reasonable velocity factor for 300 ohm twinlead.

The length of the stub makes no sense to me at all, but I'm sure he had his reasons.

Using the proportions he used, I wrote a perl program to calculate the size for any frequency.

For six meters, it matches his dimensions with a center frequency of 50.1 mHz:

for frequency 50.100 mHz.
total length 9 feet 3 inches or 2.844 meters.
shorted length length 8 feet 10 inches or 2.396 meters.
difference length length 0 feet 8 inches or 0.224 meters.
stub length length 0 feet 11 inches or 0.298 meters.

For 20 meters (14.175 mHz center frequency) I got:
for frequency 14.175 mHz.
total length 32 feet 11 inches or 10.052 meters.
shorted length length 32 feet 9 inches or 8.469 meters.
difference length length 0 feet 7 inches or 0.792 meters.
stub length length 0 feet 5 inches or 1.052 meters.

Anyone have any ideas? Will this work? How do I calculate the stub length?

The ARRL Handbook antenna (not to be confused with the ARRL Antenna Handbook, which he used) was slightly different, although this would work too if my calculations are correct.

Geoff.
--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Visit my 'blog at http://geoffstechno.livejournal.com/

1446. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 14:17:58 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <qKGlf.7000$3V4.4111@trnddc06>
Source record: 64407

>
> For 20 meters (14.175 mHz center frequency) I got:
> for frequency 14.175 mHz.
> total length 32 feet 11 inches or 10.052 meters.
> shorted length length 32 feet 9 inches or 8.469 meters.
> difference length length 0 feet 7 inches or 0.792 meters.
> stub length length 0 feet 5 inches or 1.052 meters.
>
>
> Anyone have any ideas? Will this work? How do I calculate the stub
> length?
>
Think you have some errant decimal points in the last three English/metric
conversions
W4OP

1447. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 14:22:56 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <C-SdnR6M3OKqpG7eRVn-sw@comcast.com>
Source record: 64408

I don't know your budget, but the SGC Stealth Kit sounds like what you need. It uses an automatic tuner and an 80 foot length of wire that can be configured as a multi-loop. In your case you would string the wire twice around the wooden ceiling. I am in the process of installing one in my third floor attic. I will have to use a four turn loop to fit the space.

Good luck, jimbo

Joe S. wrote:
> I am considering installing a stealth antenna on the porch of my first-floor
> apartment and would like some suggestions. Here's the deal.
>
> -- First floor apartment.
> -- Porch is a concrete slab, 10 X 10.
> -- The ceiling of the porch is the underside of the balcony of the apartment
> above me. It's all wooden.
> -- Thus, the ceiling of my porch is 10 X 10, wood.
>
> How about I build a 40-meter dipole, 67 feet long, feed with coax and a
> balun in the center. Attach the coax and the balun to one of the corner
> posts that supports the balcony above my porch. Run the two sides of the
> dipole in opposite directions, but, instead of stretching the wire straight
> as I normally would if hanging the dipole from trees, towers, etc., what if
> I run the wires around the underside of the balcony deck? This would give
> me a horizontal loop made up of two pieces of wire, each 33.5 feet long,
> with the loop being 10 feet on a side, thus, each end of the dipole would
> run around underneath the balcony deck and come back almost to the center of
> the dipole.
>
> That is -- the balun would be secured to one of the corner posts. One piece
> of wire, 33.5 feet long would run straight out from the balun along the 2 X
> 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run another 10 feet and
> make another 90-deg turn (30 ft), and end up 3.5 feet after the third turn.
> The other end of the dipole would do the same thing, only run in the
> opposite direction. At the balun, the two wires making up the dipole would
> run at a 90-deg angle to each other. And, the two wires would overlap (or
> be only a few inches apart) for 27 feet of their length.
>
> I probably didn't explain this idea too well but I'd like to hear some
> suggestions. Thanks.
>
>

1448. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 15:11:03 UTC
From: gsm@mendelson.com
Message-ID: <slrndv6h03.qdr.gsm@cable.mendelson.com>
Source record: 64409

Dale Parfitt wrote:
> Think you have some errant decimal points in the last three English/metric
> conversions

Thanks for noticing that.

I had the feet part of them being zero, when they should have been
greater. It was stupid testing, it worked right at 51 mHz, where they
were zero. I didn't look at the 14.1 mHz numbers closely enough.

Here is the correct numbers:

for frequency 14.100 mHz.
total length 33 feet 1 inches or 10.106 meters.
shorted length length 32 feet 11 inches or 8.514 meters.
difference length length 2 feet 7 inches or 0.796 meters.
stub length length 3 feet 5 inches or 1.057 meters.

Just another proof that programmers should NOT do quality assurance on their
own work.

73,

Geoff.
--
Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice: 1-215-821-1838
Visit my 'blog at http://geoffstechno.livejournal.com/

1449. ZM30 antenna-analyzer

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 15:27:42 UTC
From: PA3HGT <tiswathe@blabla.com>
Message-ID: <45gvjdF6j1m6U1@individual.net>
Source record: 64410

Hello,

There's a Yahoo group for those who is interested in the Palstar ZM30 antenna-analyzer.

http://groups.yahoo.com/group/palstarzm30/

Kind regards,

Hans

1450. Re: Orthogonality relation between modes in Dielectric-Lined Circular Waveguide (or with concentric dielectric layers)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 15:41:16 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <wYHIf.27511$id5.8973@bgtnsc04-news.ops.worldnet.att.net>
Source record: 64411

Did you actually read the paper you referenced?

Two points:

The authors note on the third page that they could not find any prior derivation of the orthonormality relationships for this configuration. The paper was published in 2000, so it should be an easy library research project to find any subsequent papers that reference this work.

Appendix A goes through the derivation of the orthonormality relationships in excruciating detail. Every step is outlined, including the integration tricks. It is unlikely that you would find any paper, or even a textbook, that is more detailed.

73,
Gene
W4SZ

skatsis@ee.duth.gr wrote:
> I am working on dielectric-lined circular waveguides and I am searching
> for a reference on the orthogonality of modes. The only thing that I
> found is in the link below (at the bottom of the message)
> but I am looking for something with more details.
>
> Assume that we have a uniform cylindrical waveguide with N concentric
> dielectric layers [my case of interest is when N=2, and we have the
> waveguide with a thin inner dielectric layer (second layer N=2) and the
> rest is vacum (air-> N=1-> first "layer")].
> I need an orthogonality relation that applies between any two modes.
> The fact is that I already have found an orthogonality relation (see
> the link below) but I need a more detailed analysis.
>
> http://www.bnl.gov/ATF/experiments/Dielectric/2-Theory_of_Wakes.pdf
>
> IF ANYONE KNOWS SOMETHING PLEASE ANSWER THIS MESSAGE.
>

1451. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 17:31:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AzJIf.56950$PL5.48385@newssvr11.news.prodigy.com>
Source record: 64412

Geoffrey S. Mendelson wrote:

> Hi, the early '90s ARRL handbooks had construction information for a
> simple folded dipole made of 300 oHm twinlead. The article was not in
> the '96 edition or later.

I have the '93 edition and cannot find it but I remember how to
do it.

> The antenna was made of 300 ohm twinlead. It was fed in the center by
> a 300 ohm twinlead feeder to a matching capacitor which made it aproximate
> 50 ohms. The capacitor could be either a regular capacitor (I used silver
> mica WWII surplus) or a "stub" of more twinlead.

Assuming the SWR on the 300 ohm twinlead is 1:1,
you want to install a capacitor that causes an SWR of 6:1
on the twinlead between the capacitor and the 1:1 choke/balun.
300+j0 in parallel with 0-jXc needs to result in 60-j120 ohms.

The reactance of the capacitor should be -j150 ohms and it should
be positioned 0.062 wavelength from the 1:1 choke/balun. For instance,
for 7.2 MHz, the capacitor should be 147pf and be positioned
7.7 ft. from the 1:1 choke/balun assuming a VF of 0.9.
--
73, Cecil http://www.qsl.net/w5dxp

1452. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 17:40:43 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vlJIf.56953$PL5.50409@newssvr11.news.prodigy.com>
Source record: 64413

Geoffrey S. Mendelson wrote:
> From my calculations, assuming his center frequency was 51 mHz, he used
> a size factor of 142.494 for the total length of the antenna. This seems
> odd to me, as it would translate to 467.5 feet which is number I've
> never seen before.

468/f is the length of a dipole adjusted for end effects.

> Anyone have any ideas? Will this work? How do I calculate the stub
> length?

Why not use a Xc = -j150 cap? I get 0.176 wavelength for a
capacitive stub which may be inconvenient at HF.
--
73, Cecil http://www.qsl.net/w5dxp

1453. New Program: OP_ANGLE

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 17:45:24 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dsvpbk$56k$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64414

New Program - OP_ANGLE.exe

This program assists with understanding, choosing and setting the
operating angles of Class-B and Class-C RF power amplifiers.

The operating angle underlies all performance characteristics.

Although RF operating conditions for tubes can be set up using
manufacturers' data sheets, the program refers to use of a tube's
Operating Characteristic Curves.

Download program OP_ANGLE in a few seconds from website below. Not
zipped up. Run immediately. File size = 39 kilobytes.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

1454. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 18:38:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v6ta6f01hv26@corp.supernews.com>
Source record: 64415

Geoffrey S. Mendelson wrote:
> . . .
> The shorted length makes perfect sense, the ratio of total to shorted is
> .8425 which is a reasonable velocity factor for 300 ohm twinlead.
> . . .

Actually, shorting the antenna at an intermediate point between the center and ends rather than just at the ends doesn't make much sense.

The feedpoint impedance of a folded dipole consists of four times (or other ratio if the conductors are different in size or there are more than two folded conductors) the impedance of a standard dipole, in parallel with two series connected shorted stubs. The dipole consists of the two conductors in parallel. This behaves as a single fat wire which has the effective velocity factor of ordinary insulated wire, around 0.97 or 0.98 that of bare wire. That's why a folded dipole is about the same overall length as a standard dipole. The stubs have the physical length of half the dipole, or a bit shy of a quarter free space wavelength. Unlike the dipole part, they operate as transmission lines, so their velocity factor is around 0.8 -- a value which varies somewhat with cable construction. Folded dipoles are sometimes shorted about 0.8 of the way from the center to the ends in an apparent attempt to make the stubs an electrical quarter wavelength, resulting in their impedance being very high as seen at the feedpoint.

But if the intermediate short circuit isn't done, the effect of the somewhat longer stubs is only to add a bit of capacitive reactance across the feedpoint. This lowers the antenna resonant frequency roughly 50 kHz at 14 MHz, and has very little effect on the feedpoint resistance. Antenna resonance can be restored by simply shortening the antenna a little. So why bother with the intermediate short?

Roy Lewallen, W7EL

1455. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 20:12:11 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <vWLIf.778164$_o.540319@attbi_s71>
Source record: 64416

The 1986 handbook has the details for this type of antenna on page 33-14, under the title of "Simple Antennas for HF Portable Operation." For 7.15 MHz, the value of the capacitor is 152 pF, and the length of the matching stub is 6'11-1/2". An open-end stub, made from twin lead, of length 20'-1/2" can be substituted for the capacitor.

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11v6ta6f01hv26@corp.supernews.com...
> Geoffrey S. Mendelson wrote:
>> . . .
>> The shorted length makes perfect sense, the ratio of total to shorted is
>> .8425 which is a reasonable velocity factor for 300 ohm twinlead.
>> . . .
>
> Actually, shorting the antenna at an intermediate point between the center
> and ends rather than just at the ends doesn't make much sense.
>
> The feedpoint impedance of a folded dipole consists of four times (or
> other ratio if the conductors are different in size or there are more than
> two folded conductors) the impedance of a standard dipole, in parallel
> with two series connected shorted stubs. The dipole consists of the two
> conductors in parallel. This behaves as a single fat wire which has the
> effective velocity factor of ordinary insulated wire, around 0.97 or 0.98
> that of bare wire. That's why a folded dipole is about the same overall
> length as a standard dipole. The stubs have the physical length of half
> the dipole, or a bit shy of a quarter free space wavelength. Unlike the
> dipole part, they operate as transmission lines, so their velocity factor
> is around 0.8 -- a value which varies somewhat with cable construction.
> Folded dipoles are sometimes shorted about 0.8 of the way from the center
> to the ends in an apparent attempt to make the stubs an electrical quarter
> wavelength, resulting in their impedance being very high as seen at the
> feedpoint.
>
> But if the intermediate short circuit isn't done, the effect of the
> somewhat longer stubs is only to add a bit of capacitive reactance across
> the feedpoint. This lowers the antenna resonant frequency roughly 50 kHz
> at 14 MHz, and has very little effect on the feedpoint resistance. Antenna
> resonance can be restored by simply shortening the antenna a little. So
> why bother with the intermediate short?
>
> Roy Lewallen, W7EL

1456. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 22:23:20 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <8LGdnXuY8oVfNG7eRVn-gg@comcast.com>
Source record: 64417

"jimbo" <jimbo62@spamex.com> wrote in message
news:C-SdnR6M3OKqpG7eRVn-sw@comcast.com...
>I don't know your budget, but the SGC Stealth Kit sounds like what you
>need. It uses an automatic tuner and an 80 foot length of wire that can be
>configured as a multi-loop. In your case you would string the wire twice
>around the wooden ceiling. I am in the process of installing one in my
>third floor attic. I will have to use a four turn loop to fit the space.
>
> Good luck, jimbo

Thanks -- I'll check it out.

I have an extra ATAS-120 -- it's a long story -- my original ATAS-120 went under (salt) water in Katrina along with my truck. I removed the antenna from the truck and the insurance company took the rest. I replaced my drowned FT-857 and ATAS-120 and truck and installed the new rig and antenna on the new truck.

Last week, I took the drowned ATAS-120 apart, cleaned it up -- there was very little corrosion, probably because of the seals on the antenna -- tried it on my truck in place of the new ATAS-120, and it's working fine.

I may try to mount the old ATAS-120 on my porch railing (wooden) and figure out a way to ground it and use it as my apartment antenna.

XYL and I are refugees from Katrina -- we were living in an apartment in Bay Saint Louis, MS, and building a house nearby -- it was all washed away in Katrina and we took a big uninsured loss. We are now looking for a home here in NE Tennessee -- 1,500 feet or more above sea level.

I may just wait until we find a house because we are looking for houses with land attached and I feel an antenna farm coming on!!

>
> Joe S. wrote:
>> I am considering installing a stealth antenna on the porch of my
>> first-floor apartment and would like some suggestions. Here's the deal.
>>
>> -- First floor apartment.
>> -- Porch is a concrete slab, 10 X 10.
>> -- The ceiling of the porch is the underside of the balcony of the
>> apartment above me. It's all wooden.
>> -- Thus, the ceiling of my porch is 10 X 10, wood.
>>
>> How about I build a 40-meter dipole, 67 feet long, feed with coax and a
>> balun in the center. Attach the coax and the balun to one of the corner

>> posts that supports the balcony above my porch. Run the two sides of the
>> dipole in opposite directions, but, instead of stretching the wire
>> straight as I normally would if hanging the dipole from trees, towers,
>> etc., what if I run the wires around the underside of the balcony deck?
>> This would give me a horizontal loop made up of two pieces of wire, each
>> 33.5 feet long, with the loop being 10 feet on a side, thus, each end of
>> the dipole would run around underneath the balcony deck and come back
>> almost to the center of the dipole.
>>
>> That is -- the balun would be secured to one of the corner posts. One
>> piece of wire, 33.5 feet long would run straight out from the balun along
>> the 2 X 8 rim joist for 10 feet, make a 90-deg turn (20 ft), run another
>> 10 feet and make another 90-deg turn (30 ft), and end up 3.5 feet after
>> the third turn. The other end of the dipole would do the same thing, only
>> run in the opposite direction. At the balun, the two wires making up the
>> dipole would run at a 90-deg angle to each other. And, the two wires
>> would overlap (or be only a few inches apart) for 27 feet of their
>> length.
>>
>> I probably didn't explain this idea too well but I'd like to hear some
>> suggestions. Thanks.
>>

1457. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 22:44:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Q8OIf.13510$2O6.1638@newssvr12.news.prodigy.com>
Source record: 64418

John, N9JG wrote:
> The 1986 handbook has the details for this type of antenna on page 33-14,
> under the title of "Simple Antennas for HF Portable Operation." For 7.15
> MHz, the value of the capacitor is 152 pF, and the length of the matching
> stub is 6'11-1/2". An open-end stub, made from twin lead, of length 20'-1/2"
> can be substituted for the capacitor.

It might be interesting to some to explain how/why this works.
On a feedline with reflections, there are purely resistive
current maximum points existing every half-wavelength up and
down the feedline. Since the resistance at the current maximum
point is often in the ballpark of 50 ohms, this is often
a logical point at which to connect the transmitter/tuner. That's
why I feed my 130 foot dipole at a current maximum point on each
HF band.

However, for a folded dipole with a 300 ohm resonant impedance
fed with 300 ohm feedline, there are no reflections and therefore
no current maximum points because there are no standing waves.
So the trick is to cause a 50 ohm current maximum point to occur
by causing reflections and standing waves on a short piece of
series matching section. A parallel capacitor can often accomplish
this function. Obviously, a capacitive stub can do the same thing.

Note: the following calculations were done with a paper Smith Chart
and therefore suffer from some inaccuracies.

A parallel capacitive reactance of -j150 ohms will shift the 300+j0
ohm impedance to 60-j120 ohms. Some may want to refresh their
memories on the parallel/series and series/parallel impedance
equations.

60-j120 ohms will cause an SWR of ~6:1 from the point where the
capacitor is installed on a flat 300 ohm feedline to the necessary
1:1 choke/balun. If we divide the 300 ohm Z0 by the SWR, we will
obtain the resistance at the 6:1 SWR current maximum point. That
value is 300/6 = 50 ohms and it exists ~0.062 wavelengths
farther along than the 60-j120 point where the cap is located.

The cap needs to cause an SWR of 9:1 if flat 450 ohm line is used
and 12:1 if flat 600 ohm line in used. Needless to say, the Z0 of
the line determines the value of capacitive reactance that is
necessary to accomplish that function.
--
73, Cecil http://www.qsl.net/w5dxp

1458. Radials for a table mounted MP-1

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 22:47:44 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1140043663.962582.87210@g47g2000cwa.googlegroups.com>
Source record: 64419

I'm trying to get the best possible performance from a Superantennas MP-1 on 40m. The antenna comes with 4 ten foot wire radials. The antenna will be clamped to a plastic coated steel picnic table. Question - would 4 33' radials be an improvement or by laying them in the grass, does it really matter?

pse rsvp to my call at yahoo dot com.

73's de Ken KG0WX

1459. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 23:04:48 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <r8c7v1de2d5g1evv42huv9lehsm86i73lo@4ax.com>
Source record: 64420

On Wed, 15 Feb 2006 22:44:00 GMT, Cecil Moore <mycall@arrl.net> wrote:

>It might be interesting to some to explain how/why this works.
...

Some thoughts on why it might not work to plan, though it should be close to plan and capable of fine adjustment if needed.

Worth noting that the characteristic impedance of some lines is quite different to their market labelling, especially 300 ohm and 450 ohm lines.

In this part of the world, nominal 300 ohm TV ribbon is more like 360. Wes measured a range of nominal 450 ohm lines to be from 360 to 400 ohms.

Although the calculated answer might be a shunt capacitor of 147pF, in practice a close value would be used and both the dipole length and feedline length could be juggled for better match if needed. Alternatively, a shunt stub could be used and tuned along with the series line length.

The feed point impedance of the dipole will depend on its environment to some extent, and may be reactive if formulas are used to cut it to length.

Of course, it is a one-band matching arrangment.

Owen
--

1460. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 23:08:46 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <2wOIf.33304$H71.29885@newssvr13.news.prodigy.com>
Source record: 64421

"Joe S." <anon@mous.com> wrote in message
news:8LGdnXuY8oVfNG7eRVn-gg@comcast.com...
>
> "jimbo" <jimbo62@spamex.com> wrote in message
> news:C-SdnR6M3OKqpG7eRVn-sw@comcast.com...
> XYL and I are refugees from Katrina -- we were living in an apartment in
> Bay Saint Louis, MS, and building a house nearby -- it was all washed away
> in Katrina and we took a big uninsured loss. We are now looking for a
> home here in NE Tennessee -- 1,500 feet or more above sea level.

Now there is one of the better decisions I've heard from recipents of
Katrinas
free demolition services (G) God grant you and your family a long and safe
life
at this more fortuitous elevation. Oh, and good luck with the antenna farm
acquisition, also.

Harold
KD5SAK

1461. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-15 23:13:45 UTC
From: richardharrison@webtv.net
Message-ID: <23081-43F3B5A9-311@storefull-3256.bay.webtv.net>
Source record: 64422

Roy Lewallen, W7EL wrote:
"The average power is therefore relatively small, much smaller than the product of RMS volts times RMS amps."

RMS is short for root-mean-square. RMS is synonymous with the "effective value" of a sinusoidal waveform.

Therefore, the average power for the time period of one complete cycle or any number of complete cycles is the product of the effective volts times the effective amperes.

See page 19 of "Alternating Current Fundamentals" for derivations of the proof.

Average power is exactly the product of rms volts times rms amps in usual circumstances.

Best regards, Richard Harrison, KB5WZI

1462. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 00:08:53 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ujf7v1956sajsfv8tm5jnt30o9k1bsscm9@4ax.com>
Source record: 64423

On Wed, 15 Feb 2006 17:13:45 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Roy Lewallen, W7EL wrote:
>"The average power is therefore relatively small, much smaller than the
>product of RMS volts times RMS amps."
>
>RMS is short for root-mean-square. RMS is synonymous with the "effective
>value" of a sinusoidal waveform.
>
>Therefore, the average power for the time period of one complete cycle
>or any number of complete cycles is the product of the effective volts
>times the effective amperes.

Leaving aside your new confusing term "effective value", if you multiply Vrms by Irms in an AC circuit you get Apparent Power (units are Volt Amps or VA).

Apparent Power is the vector sum of two quadrature components Real Power (Watts) and Reactive Power (VAR).

Real Power is the thing you describe when you talk about average power. It is Real Power that is the rate of flow of energy averaged over a complete AC cycle.

>
>See page 19 of "Alternating Current Fundamentals" for derivations of the
>proof.
>
>Average power is exactly the product of rms volts times rms amps in
>usual circumstances.

Depends on what you mean by "usual circumstances". Your rule does not apply if there is a phase difference between V and I, which is commonly the case in power distribution, and is commonly the case in RF where loads circuit impedances may have a reactive component.

To an electrician, (Real) Power = Vrms * Irms * PF where PF (the power factor) is the cosine of the phase angle between V and I. This isn't engineering stuff, sparkies know and apply it every day.

Owen
--

1463. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 00:21:29 UTC
From: richardharrison@webtv.net
Message-ID: <23080-43F3C589-1341@storefull-3256.bay.webtv.net>
Source record: 64425

The book I referred to in a previous posting is:
"Alternating Current Fundamentals" by John R. Duff. It is a 1963 edition that was copyrighted in 1961. Library of Congress Catalog Card Number is 61-15728. Publisher in the U.S,A, is Litton Educational Publishing, Inc. In Canada the simultaneous publisher is Delmar Publishers.

Best regards, Richard Harrison, KB5WZI

1464. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 00:25:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pEPIf.21042$_S7.5708@newssvr14.news.prodigy.com>
Source record: 64424

Owen Duffy wrote:
> Cecil Moore <mycall@arrl.net> wrote:
>>It might be interesting to some to explain how/why this works.
>
> Some thoughts on why it might not work to plan, though it should be
> close to plan and capable of fine adjustment if needed.

Close is all most of us need. Once the 50 ohm SWR is below
about 10:1, the fine adjustments are relatively easy. If the SWR
decreases with adjustments, we are going the right direction.
--
73, Cecil http://www.qsl.net/w5dxp

1465. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 03:00:16 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v7qm1bn0lh745@corp.supernews.com>
Source record: 64326

Richard Harrison wrote:
> Roy Lewallen, W7EL wrote:
> "The average power is therefore relatively small, much smaller than the
> product of RMS volts times RMS amps."
>
> RMS is short for root-mean-square. RMS is synonymous with the "effective
> value" of a sinusoidal waveform.
>
> Therefore, the average power for the time period of one complete cycle
> or any number of complete cycles is the product of the effective volts
> times the effective amperes.

No, I'm sorry, that isn't true. The average power isn't the product of the product of the RMS voltage times the RMS current, except in the single circumstance of their being in phase.

> See page 19 of "Alternating Current Fundamentals" for derivations of the
> proof.

I don't have this book, but I know that in the past you've quoted from books without having fully understood the context of the quote. I'm sure that's the case here. Any electrician or technician should know that for sinusoidal waveforms, Pavg = Vrms * Irms * cos(theta) where theta is the phase angle between V and I. And hopefully you can see with a few moments and a calculator that if theta = 90 degrees, Pavg = zero regardless of V and I.

> Average power is exactly the product of rms volts times rms amps in
> usual circumstances.

Perhaps your "usual circumstances" are that the load is purely resistive. But that's not "usual circumstances" for a host of applications.

Roy Lewallen, W7EL

1466. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 04:26:34 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt0utq$49j$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64327

How about P = Square(V) / R watts

or P = Square(I) * R watts

for no phase angles.

1467. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 05:19:01 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11v82q6i7mglmc3@corp.supernews.com>
Source record: 64328

Reg Edwards wrote:
> How about P = Square(V) / R watts
>
> or P = Square(I) * R watts
>
> for no phase angles.

Those are fine by me.

Just for the record, though:

V is the voltage across R, I is the current through R. This is important when there are other components, hence possibly other values of V and I, in the circuit. P can be average and V and I RMS; or P, V, and I can all be functions of time -- the formulas are ok in either case. And finally, just for the fuss-budgets, we're assuming R isn't varying with time.

Picky as this might seem, it's awfully important to make perfectly clear just what a formula applies to and what it doesn't. Otherwise it's sure to be misapplied in situations where it isn't valid. (Clarification reduces the chance of misapplication from certain to only highly likely.)

Roy Lewallen, W7EL

1468. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 05:40:49 UTC
From: richardharrison@webtv.net
Message-ID: <17265-43F41061-356@storefull-3253.bay.webtv.net>
Source record: 64329

Roy Lewallen, W7EL wrote:
"V is the voltage across R, I is the current through R."

Yes. The voltage drop across a resistor is always in-phase with the current through the resistor as there is no energy storage in a resistor.

Best regards, Richard Harrison, KB5WZI

1469. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 06:36:59 UTC
From: David Harmon <source@netcom.com>
Message-ID: <447d1c37.338298984@news.west.earthlink.net>
Source record: 64330

On Wed, 15 Feb 2006 17:13:45 -0600 in rec.radio.amateur.antenna,
richardharrison@webtv.net (Richard Harrison) wrote,
>RMS is short for root-mean-square. RMS is synonymous with the "effective
>value" of a sinusoidal waveform.
>
>Therefore, the average power for the time period of one complete cycle
>or any number of complete cycles is the product of the effective volts
>times the effective amperes.

That is true for the Special Case where your load is a pure
resistance. In general, no.

1470. Re: Radials for a table mounted MP-1

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 11:12:28 UTC
From: Jim <K4SQR@juno.com>
Message-ID: <1140088347.920605.234480@z14g2000cwz.googlegroups.com>
Source record: 64331

KG0WX wrote:
> I'm trying to get the best possible performance from a Superantennas
> MP-1 on 40m. The antenna comes with 4 ten foot wire radials. The
> antenna will be clamped to a plastic coated steel picnic table.
> Question - would 4 33' radials be an improvement or by laying them
> in the grass, does it really matter?
>
> pse rsvp to my call at yahoo dot com.
>
> 73's de Ken KG0WX

Ken,
More radials are better. If possible, add the 4 33' radials to existing
10' radials.
Radials lower the loss to verticals, and increase overall performance.
GL,
Jim

1471. Re: Another Car Radio static question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 12:28:28 UTC
From: Jeff Dieterle <jdieter@nospam.carlnet.org>
Message-ID: <515c3$43f46fec$4249809e$13977@COMTECK.COM>
Source record: 64332

I've noticed something else on this problem, below the 3-phase electrical conductors, there is either a telephone or catv wire. The intense periods occur when I drive by some type of device that loops this cable in to a pear shaped configuration. I guess it's not a periodic sound but appears that way because they are evenly spaced and I drive the same speed.
Maybe if anyone is still following this thread and that sheds anymore light they'll respond.
"Dave Platt" <dplatt@radagast.org> wrote in message news:11un62s35hpkk9c@corp.supernews.com...
> In article <10cd5$43eb4ef3$424980b2$32629@COMTECK.COM>,
> Jeff Dieterle <jdieter@nospam.carlnet.org> wrote:
>
>>Is the person or company responsible for creating this type of
>>interference
>>obligated to correct the cause?
>
> It depends.
>
> If they're radiating RF in excess of FCC part 15 limits, and do not
> have a license to transmit in whatever frequency band they are using,
> then they're very probably obligated to fix the problem or to shut
> down whatever equipment is radiating.
>
> If they're transmitting in a frequency band / allocation for which
> they have a proper license, and if their transmission isn't leaking
> spurious frequencies in excess of the FCC limits, then they're
> probably quite legal. In this situation, what you'd hearing would be
> considered to be "undesired reception" - that is, your car radio is
> being overwhelmed by a strong signal outside of its normal passband -
> and the FCC would consider this the fault of your radio.
>
> Without doing some spectrum analysis and direction finding it's hard
> to distinguish the two from the symptoms you report.
>
> --
> Dave Platt <dplatt@radagast.org> AE6EO
> Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
> I do _not_ wish to receive unsolicited commercial email, and I will
> boycott any company which has the gall to send me such ads!

1472. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 13:25:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <P2%If.29206$Jd.16970@newssvr25.news.prodigy.net>
Source record: 64333

Reg Edwards wrote:
> How about P = Square(V) / R watts
>
> or P = Square(I) * R watts
>
> for no phase angles.

Actually, the "R" implies an impedance of R+j0,
i.e. a phase angle of zero.
--
73, Cecil http://www.qsl.net/w5dxp

1473. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 14:50:23 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <AJ-dnerl4M2xDGneRVn-hA@comcast.com>
Source record: 64334

kd5sak wrote:

> "Joe S." <anon@mous.com> wrote in message
> news:8LGdnXuY8oVfNG7eRVn-gg@comcast.com...
>
>>"jimbo" <jimbo62@spamex.com> wrote in message
>>news:C-SdnR6M3OKqpG7eRVn-sw@comcast.com...
>>XYL and I are refugees from Katrina -- we were living in an apartment in
>>Bay Saint Louis, MS, and building a house nearby -- it was all washed away
>>in Katrina and we took a big uninsured loss. We are now looking for a
>>home here in NE Tennessee -- 1,500 feet or more above sea level.
>

Following the example of NOAH ???

Seriously, I am truly sorry for your loss. I am impressed by your
determination to rebuild. Use a good Real Estate attorney to assure the
absence of CC&Rs. [Or, that you fully understand the CC&Rs].

1474. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 15:20:34 UTC
From: richardharrison@webtv.net
Message-ID: <7288-43F49842-1369@storefull-3251.bay.webtv.net>
Source record: 64336

Owen Duffy wrote:
"Leaving aside your new confusing term "effective value", if you multiply Vrms by Irms in an AC circuit you get Apparent Power (units are volt amps or VA."

Exactly, except the term "effective value is as old as a-c power calculations. The value of the a-c volt was chosen to produce the same effect, lamps as bright, heat as warm, as d-c does.

My electronic dictionary says:
"rms amplitude - Root-mean-square amplitude, also called effective amplitude. The value assigned to an alternating current or voltage that results in the same power dissipation in a given resistance as dc current or voltage of the same numerical value.'

Best regards, Richard Harrison, KB5WZI

1475. Re: New Program: OP_ANGLE

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 15:28:47 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt25nf$3fa$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64335

To anyone who may be interested.

In the notes to this new program I omitted to say that the computed components of plate current constitute the first few significant terms of a Fourier Series.

There's the DC component, the fundamental frequency component, and the 2nd, 3rd, 4th and 5th harmonic components.

The amplitude of the harmonics decrease as the harmonic order increases. Amplitudes are the peak sinewave values (not rms).

If the components, including the DC component, are added together taking into account their signs, then their sum is very nearly equal to the computed peak instantaneous plate current. Which has been adjusted to equal the actual value which flows in the tube.

If the Fourier Series had been extended to even higher harmonics then the sum of the series would have converged to the peak instantaneous value of plate current exactly.

This is a check on the accuracy of the Fourier Analysis performed by the program. There's ample oportunity for bugs.

If an amplifier is used as a frequency multiplier then power can be extracted from the plate by an LC circuit tuned to the required harmonic.

The correct plate load impedance is the required peak RF volts across it divided by the peak amplitude of the plate current component. There is NOT a conjugate match. The internal resistance of PA's is NOT 50 ohms as is commonly believed. With pentodes, beam tetrodes and transistors (transistors have operating angles) it is often much higher.

There, I've said it again!

Reg, G4FGQ.

1476. Re: New Program: OP_ANGLE

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 18:24:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt2g1l$2tt$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64337

Program OP_ANGLE

The Fourier Analysis of plate current has now been extended from the
5th up to the 7th harmonic. Otherwise the program has not been changed
except for the issue date. If you are still interested, download the
new version and use it to overwrite the first.

It seems that for almost exact agreement between peak plate current
and the sum of the harmonic components it is necessary to extend the
analysis up to around the 20th harmonic. There's not enough room on
the screen to display results.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

1477. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 21:11:03 UTC
From: Phil <phil@nospampse.be>
Message-ID: <HT5Jf.261356$xP2.7924851@phobos.telenet-ops.be>
Source record: 64338

"Geoffrey S. Mendelson" <gsm@mendelson.com> wrote in message
news:slrndv5o0l.jp4.gsm@cable.mendelson.com...
> Hi, the early '90s ARRL handbooks had construction information for a
> simple folded dipole made of 300 oHm twinlead. The article was not in
> the '96 edition or later.
>
> The antenna was made of 300 ohm twinlead. It was fed in the center by
> a 300 ohm twinlead feeder to a matching capacitor which made it aproximate
> 50 ohms. The capacitor could be either a regular capacitor (I used silver
> mica WWII surplus) or a "stub" of more twinlead.
>
> At the end of the feed line, which was part of the antenna, you could
> attach it directly to a 50 omh unbalanced transciever or a 50 ohm coax
> of any length.
>
> The length of the antenna was one half wavelength without the velocity
> factor and then shorted at the wavelength points compensating for
> the velocity factor.
>
> For example, if it was 10 meters long for a 20 meter dipole, the shorts
> were about 4 meters from the center for twinlead with a velocity factor
> of 0.8.
>
> If anyone has a copy of the article and could scan it for me, I'd
> appreicate it, or even better yet, a pointer to an online version
> of it.
>
> Thanks in advance and 73,
>
> BTW, if you are also in Israel and asking yourself "where does he get
> the twinlead"? I don't. I brought it with me when I moved here in '96.
>
> Geoff.
>
> --
> Geoffrey S. Mendelson, Jerusalem, Israel gsm@mendelson.com N3OWJ/4X1GM
> IL Voice: (07)-7424-1667 IL Fax: 972-2-648-1443 U.S. Voice:
> 1-215-821-1838
> Visit my 'blog at http://geoffstechno.livejournal.com/

I played a lot with a folded dipole for 14 MHz, both with twin lead and with
two parallel wires about 20 cm apart.

To feed it, I used a simple 75 ohms to 300 ohms Neosid transformer
currently/formerly intended to connect a 75 ohms VHF television set to an

antenna with twin lead. Depending on the country, such a bal/un is called a "symetriser", a "bazooka", a "pig's nose", etc...

This small pig's nose can cope with 100 watts output on 14 MHz and higher.

I never tried it on lower frequencies. I expect it would get rather warm on 80 m.

1478. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 22:00:56 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <aes9v1p3v2av94c2cfp6j9hn9tavkuvbcm@4ax.com>
Source record: 64339

On Thu, 16 Feb 2006 09:20:34 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Owen Duffy wrote:
>"Leaving aside your new confusing term "effective value", if you
>multiply Vrms by Irms in an AC circuit you get Apparent Power (units
>are volt amps or VA."
>
>Exactly, except the term "effective value is as old as a-c power
>calculations. The value of the a-c volt was chosen to produce the same
>effect, lamps as bright, heat as warm, as d-c does.
>
>My electronic dictionary says:
>"rms amplitude - Root-mean-square amplitude, also called effective
>amplitude. The value assigned to an alternating current or voltage that
>results in the same power dissipation in a given resistance as dc
>current or voltage of the same numerical value.'

Richard, your discussion here is limited to DC circuits.

Your proposition in another post that Vrms * Irms gives the Real Power (ie indicates net energy flow over time) does apply to DC circuits, but it does not apply generally.

You have cited a text book to support your position, however it is likely that you have misinterpreted the text book.

Work this example through with your textbook:

We have 120Vrms AC 60Hz (sinusoidal) impressed across a load of 85 ohms of resistance and an ideal inductor of 85 ohms reactance in series. The load impedance is 85+j85. The Circuit current is 120/(|85+j85|) or 1Arms.

The power dissipated in the resistance is 85W, and since it is the only resistance dissipating power, the Real Power for the entire circuit is 85W. The circuit Apparent Power is 120 * 1 or 120VA, the Reactive Power is 85VAR.

The circuit Vrms * Irms does not give the Real Power for this circuit.

Owen
--

1479. Re: Stealth antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 22:05:45 UTC
From: "Joe S." <anon@mous.com>
Message-ID: <7MSdnXLSJfe_amneRVn-qA@comcast.com>
Source record: 64340

```
"Amos Keag" <A.K01@comcast.net> wrote in message
news:AJ-dnerl4M2xDGneRVn-hA@comcast.com...
> kd5sak wrote:
>
>> "Joe S." <anon@mous.com> wrote in message
>> news:8LGdnXuY8oVfNG7eRVn-gg@comcast.com...
>>
>>>"jimbo" <jimbo62@spamex.com> wrote in message
>>>news:C-SdnR6M3OKqpG7eRVn-sw@comcast.com...
>>>XYL and I are refugees from Katrina -- we were living in an apartment in
>>>Bay Saint Louis, MS, and building a house nearby -- it was all washed
>>>away in Katrina and we took a big uninsured loss. We are now looking for
>>>a home here in NE Tennessee -- 1,500 feet or more above sea level.
>>
>
> Following the example of NOAH ???
>
> Seriously, I am truly sorry for your loss. I am impressed by your
> determination to rebuild. Use a good Real Estate attorney to assure the
> absence of CC&Rs. [Or, that you fully understand the CC&Rs].
>

Yep, we have dealt with CC&R's time and again. Served 30 years in the Army
and often it was easier to stick up an antenna when living on post than when
living in subdivisions. We are looking for a house or property in remote
"hollers" where folks can't even spell CC&R - hihi!!
```

1480. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 23:03:29 UTC
From: richardharrison@webtv.net
Message-ID: <981-43F504C1-1526@storefull-3254.bay.webtv.net>
Source record: 64341

Owen Duffy wrote:
"Work this example through with your textbook."

Don`t need the textbook. I`ve been working these for over 60 years.

Pythagoras gave us the solution in ancient times when electricity was produced by rubbing an amber rod with an animal pelt. The impedance is close enough to 120 ohms.

I=E/Z
E= 1 ampere

Power=Isquared x R
Power = 85 watts

Best regards, Richard Harrison, KB5WZI

1481. Aux Antenna for Wlakman FM radio?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 23:28:43 UTC
From: Ken C <cprstn54@nospam.att.net>
Message-ID: <a72av11gq4grf1btela8httgq2ukejuoc2@4ax.com>
Source record: 64342

I am tryng to use a Sansa M240 MP3 player and FM radio on my motorcycle, with the output going into a helmet sound system (Starcom1). This means that the headphones -- which usually act as the FM antenna -- will not be used.

I would like to try using a splitter on the headphone jack, with one leg to the helmet sound system and the other leg to an antenna. My first thought was a simple 1/4-wave dipole to run around the fairing perimeter. Would that work? Would I need to add some passive components or some matching because the device expects the headphones to be the antenna?

And, Yes, the Starcom1 also interfaces to a TH-F6A tri-bander.

Ken KC2JDY

1482. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-16 23:38:16 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <u23av1903gkhtd6s7jv9ht39nscgv92l9u@4ax.com>
Source record: 64343

On Thu, 16 Feb 2006 17:03:29 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Owen Duffy wrote:
>"Work this example through with your textbook."
>
>Don`t need the textbook. I`ve been working these for over 60 years.
>
>Pythagoras gave us the solution in ancient times when electricity was
>produced by rubbing an amber rod with an animal pelt. The impedance is
>close enough to 120 ohms.
>
>I=E/Z
>E= 1 ampere
>
>Power=Isquared x R
>Power = 85 watts

Nothing like Vrms * Irms though, is it?

>
>Best regards, Richard Harrison, KB5WZI
--

1483. Re: For Roy Lewallen et al: Re Older Post On My db Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 00:31:51 UTC
From: richardharrison@webtv.net
Message-ID: <7814-43F51977-1546@storefull-3257.bay.webtv.net>
Source record: 64344

Owen Duffy wrote:
"Nothing like Vrms times Irms through it is it?"

Yes it is. Sorry I fat fingered (E=1ampere). It is I=1 ampere.

1 ampere times the 85 volts dropped across an 85-ohm resistor by 1 ampere = 85 watts, same as 1x1x85=85, or 85x85/85=85. All methods of calculation must give the same answer, and they do if you don`t make a mistake.

Best regards, Richard Harrison, KB5WZI

1484. Re: Aux Antenna for Wlakman FM radio?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 04:27:04 UTC
From: SignalFerret <signalferret@verizon.net>
Message-ID: <sgcJf.39455$Eq.37547@trnddc02>
Source record: 64345

The shield on the headphone cable is used as the antenna for such devices. As for matching, how good of a match can a headphone cable be? Inside most radios the connection is a single cap, in the pF range, between the jack and the RF front end. Oh, and some kind of choke for DC continuity for the audio part. Strip away some of the plastic jacketing around cable at the FM radio end, and solder on an extra wire to the shield. Route the wire some place convenient. You'll have to experiment for best reception. Just keep it away from any noise and power sources, like spark plugs, transmitters, Illudium P-36 Explosive Space Modulators.

Life's a highway -- get on and ride,
Robert N3LGC

"Ken C" <cprstn54@nospam.att.net> wrote in message
news:a72av11gq4grf1btela8httgq2ukejuoc2@4ax.com...
>I am tryng to use a Sansa M240 MP3 player and FM radio on my
> motorcycle, with the output going into a helmet sound system
> (Starcom1). This means that the headphones -- which usually act as
> the FM antenna -- will not be used.
>
> I would like to try using a splitter on the headphone jack, with one
> leg to the helmet sound system and the other leg to an antenna. My
> first thought was a simple 1/4-wave dipole to run around the fairing
> perimeter. Would that work? Would I need to add some passive
> components or some matching because the device expects the headphones
> to be the antenna?
>
> And, Yes, the Starcom1 also interfaces to a TH-F6A tri-bander.
>
> Ken KC2JDY

1485. Remote Amateur Radio Stations group

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 11:59:43 UTC
From: support@dodgeshowtrucks.com
Message-ID: <1140177583.853687.192060@g43g2000cwa.googlegroups.com>
Source record: 64346

In the spirit of Field Day, the RARS Group was created to promote remote field and mobile operations. RARS Group is open to all licensed amateurs who enjoy operating from the field, mobile, marine or remote base locations. You can even set up your station in your backyard and join the fun. Modes of operation are SSB, CW, QRO or QRP.

So if you enjoy the outdoors and working from the field or from your boat, car or truck somewhere in the middle of nowhere, we invite you to join us and make everyday a field day.

You can visit RARS at: http://rarsgroup.com

Thanks & 73

Terry

1486. using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 15:29:01 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <YqudnU1MnL5ddmjeRVn-qQ@comcast.com>
Source record: 64347

Good morning. I would like to experiment with making a high Q coil for creating a tuned radial counterpoise. Reg's program predicts a coil of about 70 uH will create a match. One way to create such a coil would be to wind coax and use the shield as the conductor. Besides the obvious loss of physical stability due to lack of a form what are the limitations or drawbacks from using the shield?

Thanks - Dan - kb0qil

1487. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 18:16:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vc4ntcub1k91@corp.supernews.com>
Source record: 64348

dansawyeror wrote:
> Good morning. I would like to experiment with making a high Q coil for
> creating a tuned radial counterpoise. Reg's program predicts a coil of
> about 70 uH will create a match. One way to create such a coil would be
> to wind coax and use the shield as the conductor. Besides the obvious
> loss of physical stability due to lack of a form what are the
> limitations or drawbacks from using the shield?

The braided shield will be substantially lossier than a solid wire or tube of the same diameter. And the relatively poor quality dielectric used for the outside of the cable will also reduce the Q somewhat. So coax isn't a good choice for your stated objective of making a high Q coil.

Roy Lewallen, W7EL

1488. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-17 20:16:22 UTC
From: Mike Speed <mike8s2@yahoo.com>
Message-ID: <1140207382.882131.11500@z14g2000cwz.googlegroups.com>
Source record: 64349

> The braided shield will be substantially lossier than a solid wire or
> tube of the same diameter.

Why?

> And the relatively poor quality dielectric
> used for the outside of the cable will also reduce the Q somewhat.

The sheath is easy to strip.

1489. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 01:25:28 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vctsaacbdfa57@corp.supernews.com>
Source record: 64350

Mike Speed wrote:
>> The braided shield will be substantially lossier than a solid wire or
>> tube of the same diameter.
>
> Why?

Two factors. One is surface roughness. The other is caused by the current having to continually move from one group of wires to another as it travels. I'm just now doing some research on how significant these effects are, but so far I've found out they're very noticeable. It's one of the reasons the loss of typical coax is substantially greater than predicted with idealized programs or calculations that fail to take these factors into effect.

>> And the relatively poor quality dielectric
>> used for the outside of the cable will also reduce the Q somewhat.
>
> The sheath is easy to strip.

True enough, but my guess is that the resulting water and crud you'll be getting among the fine wires will be worse than the insulation.

But hey, you don't have to believe me. Make up some coils and measure their Q -- it's not hard at all. Then stick them outside for a while and measure them again. Or do like most amateurs do -- make the coils, discover that you can talk to far away places "barefoot", and declare that they "work".

Roy Lewallen, W7EL

1490. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 02:12:20 UTC
From: Mike Speed <mike8s2@yahoo.com>
Message-ID: <1140228740.616862.294460@g14g2000cwa.googlegroups.com>
Source record: 64351

>
> Two factors. One is surface roughness. The other is caused by the
> current having to continually move from one group of wires to another as
> it travels.

Interesting, but how do you know the current is moving as you say?

> I'm just now doing some research on how significant these
> effects are, but so far I've found out they're very noticeable.

Ok. I'm curious: What equipment are you using for the research?

>
> But hey, you don't have to believe me. Make up some coils and measure
> their Q -- it's not hard at all. Then stick them outside for a while and
> measure them again.

What would be a good way to measure Q?

> Or do like most amateurs do -- make the coils,
> discover that you can talk to far away places "barefoot", and declare
> that they "work".
>

Uugghh, don't I know.

1491. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 02:25:06 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <jxvJf.48233$697.40430@bignews3.bellsouth.net>
Source record: 64352

You may have better luck by using sone soft copper tubing. Dimensional stability would be one advantage.
You could use ScotchKote or some insulating paint if you needed it to be insulated.

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:YqudnU1MnL5ddmjeRVn-qQ@comcast.com...
> Good morning. I would like to experiment with making a high Q coil for creating
> a tuned radial counterpoise. Reg's program predicts a coil of about 70 uH will
> create a match. One way to create such a coil would be to wind coax and use the
> shield as the conductor. Besides the obvious loss of physical stability due to
> lack of a form what are the limitations or drawbacks from using the shield?
>
> Thanks - Dan - kb0qil

1492. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 02:38:07 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vd24h21qefea@corp.supernews.com>
Source record: 64353

Mike Speed wrote:
>> Two factors. One is surface roughness. The other is caused by the
>> current having to continually move from one group of wires to another as
>> it travels.
>
> Interesting, but how do you know the current is moving as you say?

Skin effect is well known. On a good conductor at high frequencies, current is concentrated very near the surface. When a bundle of wires ducks under another in the direction of current flow, the current has to migrate to the outside again, which means it has to move from one conductor to another. There's no question that it happens -- what's a bit harder to pin down is just how much loss typically results.

>> I'm just now doing some research on how significant these
>> effects are, but so far I've found out they're very noticeable.
>
> Ok. I'm curious: What equipment are you using for the research?

Books, and to a lesser extent the web. Information about this is scattered among a number of sources. Quite a few discuss surface roughness in a general way, but there's a particularly good explanation, analysis, and something of a quantitative treatment in Johnson & Graham's _High-Speed Signal Propagation: Advanced Black Magic_. The effect of weaving is harder to track down -- most authors simply assume coax shield conductivity loss to be negligible, and don't deal with woven conductors in any other context. But it really isn't, if you're interested in good accuracy. And of course when the braided conductor is the primary conductor, it becomes much more important. I know Tom, W8JI has done some measurements on braided vs solid strap, and I'll be asking him for more information before long. I do know that he found a very significant difference, and I have a great deal of respect for his experience, measurements, and opinions.

>> But hey, you don't have to believe me. Make up some coils and measure
>> their Q -- it's not hard at all. Then stick them outside for a while and
>> measure them again.
>
> What would be a good way to measure Q?

The way I do it is by resonating the inductor with a parallel air variable capacitor. It's important to keep it away from just about everything. I couple in and out with a very small (typically 1 pF at HF) capacitor, and make sure that the impedances of the source and detector are either very high or quite low (say 50 ohms) to minimize loss. I use a signal generator for the source and a scope for the detector. Using a

frequency counter connected to the signal generator, I measure the resonant frequency and -3dB points. The Q is the ratio of the center frequency to the 3dB bandwidth. For convenience, I made a 3dB pad I can switch in an out of the signal generator. With this, you don't even need a linear detector, and a diode and meter would do. My measurements have been within about 5 - 10% of readings with a good HP Q meter on the few occasions when I've compared them. That's close enough for my purposes.

>> Or do like most amateurs do -- make the coils,
>> discover that you can talk to far away places "barefoot", and declare
>> that they "work".
>>
>
> Uugghh, don't I know.

Many people have worked the world with 1 watt, knowing that's what they were running. A lot more have worked the world with 1 watt, thinking they were running 100. Ignorance is bliss.

Roy Lewallen, W7EL

1493. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 04:18:45 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F6A025.3020707@comcast.net>
Source record: 64354

Roy,

Thank you. It is a quick experiment to build a test coax coil and measure the Q. That should produce enough evidence to test a counterpoise.

In the mean time the research to build a coil out of copper tubing continues. So far the only alternative I can conceive is to make a wooden form and wrap the coil on the outside.

Thanks again - Dan

Roy Lewallen wrote:
> Mike Speed wrote:
>
>>> Two factors. One is surface roughness. The other is caused by the
>>> current having to continually move from one group of wires to another as
>>> it travels.
>>
>>
>> Interesting, but how do you know the current is moving as you say?
>
>
> Skin effect is well known. On a good conductor at high frequencies,
> current is concentrated very near the surface. When a bundle of wires
> ducks under another in the direction of current flow, the current has to
> migrate to the outside again, which means it has to move from one
> conductor to another. There's no question that it happens -- what's a
> bit harder to pin down is just how much loss typically results.
>
>>> I'm just now doing some research on how significant these
>>> effects are, but so far I've found out they're very noticeable.
>>
>>
>> Ok. I'm curious: What equipment are you using for the research?
>
>
> Books, and to a lesser extent the web. Information about this is
> scattered among a number of sources. Quite a few discuss surface
> roughness in a general way, but there's a particularly good explanation,
> analysis, and something of a quantitative treatment in Johnson &
> Graham's _High-Speed Signal Propagation: Advanced Black Magic_. The
> effect of weaving is harder to track down -- most authors simply assume
> coax shield conductivity loss to be negligible, and don't deal with
> woven conductors in any other context. But it really isn't, if you're
> interested in good accuracy. And of course when the braided conductor is

> the primary conductor, it becomes much more important. I know Tom, W8JI
> has done some measurements on braided vs solid strap, and I'll be asking
> him for more information before long. I do know that he found a very
> significant difference, and I have a great deal of respect for his
> experience, measurements, and opinions.
>
>>> But hey, you don't have to believe me. Make up some coils and measure
>>> their Q -- it's not hard at all. Then stick them outside for a while and
>>> measure them again.
>>
>>
>> What would be a good way to measure Q?
>
>
> The way I do it is by resonating the inductor with a parallel air
> variable capacitor. It's important to keep it away from just about
> everything. I couple in and out with a very small (typically 1 pF at HF)
> capacitor, and make sure that the impedances of the source and detector
> are either very high or quite low (say 50 ohms) to minimize loss. I use
> a signal generator for the source and a scope for the detector. Using a
> frequency counter connected to the signal generator, I measure the
> resonant frequency and -3dB points. The Q is the ratio of the center
> frequency to the 3dB bandwidth. For convenience, I made a 3dB pad I can
> switch in an out of the signal generator. With this, you don't even need
> a linear detector, and a diode and meter would do. My measurements have
> been within about 5 - 10% of readings with a good HP Q meter on the few
> occasions when I've compared them. That's close enough for my purposes.
>
>>> Or do like most amateurs do -- make the coils,
>>> discover that you can talk to far away places "barefoot", and declare
>>> that they "work".
>>>
>>
>> Uugghh, don't I know.
>
>
> Many people have worked the world with 1 watt, knowing that's what they
> were running. A lot more have worked the world with 1 watt, thinking
> they were running 100. Ignorance is bliss.
>
> Roy Lewallen, W7EL

1494. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 04:48:02 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <yFxJf.2$vd2.1@fed1read04>
Source record: 64355

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:YqudnU1MnL5ddmjeRVn-qQ@comcast.com...
> Good morning. I would like to experiment with making a high Q coil for
creating
> a tuned radial counterpoise. Reg's program predicts a coil of about 70 uH
will
> create a match. One way to create such a coil would be to wind coax and
use the
> shield as the conductor. Besides the obvious loss of physical stability
due to
> lack of a form what are the limitations or drawbacks from using the
shield?
>
> Thanks - Dan - kb0qil

You have cited the major limitation: physical form. matching coils for many broadband transmit antennas use wound coils of roughly that dimension, although they are made of copper tubing that exhibits much more stability, once shaped. May I suggest the use of PVC pipe as a form for winding the coax? Tape it in place while you're "monkeying" and then fiberglass it when you like what you have. (Auto supply stores sell the fiberglass for doing auto body work -- it's durable & light-weight.)

KD6VKW
ET USN (ret)

1495. What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 05:35:43 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1140240942.959492.40540@g47g2000cwa.googlegroups.com>
Source record: 64356

OK - I just bought a new in the box 1955 Heath GD-1B grid dipper with the extra low band coil set. $25. The dipper works FB and I used an old SO-239 chassis jack plus a bit of 22g wire and a cut down pill bottle to make a 4t coupling loop big enough to "dip" - that is I inserted the dipper's coil inside the pill bottle coil attached
to my feedline.

Now here is where I make myself look stupid - My antenna's best SWR is at 7185 with a 1.1:1 but the dipper showed max dip at 6990 (I tuned into the dipper with my K2). What's going on here?

Someone educate me.....lol

73's de Ken KG0WX

1496. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 07:22:15 UTC
From: Owen Duffy <owen@owenduffy.net>
Message-ID: <84hdv1lsug1m323jk3hjiss5otn1udq06l@4ax.com>
Source record: 64357

On Fri, 17 Feb 2006 17:25:28 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>... Or do like most amateurs do -- make the coils,
>discover that you can talk to far away places "barefoot", and declare
>that they "work".

Roy,

As we dumb amateur radio down to make it attractive to the
disinterested masses in a desperate and mistaken persuit of increasing
the number of licenced hams, this is becoming the new standard of
understanding in the redefined amateur radio.

I wrote comment on an a recent article in Australia's ham radio
magazine "Amateur Radio" that was an example of the declaration of not
just something that works, but "something that really works" though it
looks to be quite inefficient on at least one band. The comment is at

http://www.vk1od.net/blog/index.php?op=ViewArticle&articleId=21&blogId=1
.

Supporters argue "amateur radio is about having QSOs, so if you have
QSOs then the antenna works... QED".

Though antenna systems remains one of the few areas of amateur radio
where hams can cost effectively design solutions specific to their
location and needs, the lower competency standard of the new
"communicator" style amateur does not support a soundly based
understanding of antenna systems. We frequently hear the argument that
there is no need to understand electronics for modern amateur radio
where commercial radios are the norm, but forget electronics for a
moment, how many hams understand a common three component passive
network that is so often employed with variable results, the ATU.

Get used to it! Amateur radio is being transformed to "I just wanna
talk on the radio".

Owen
--

1497. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 12:48:06 UTC
From: Mike Speed <mike8s2@yahoo.com>
Message-ID: <1140266886.722102.279930@z14g2000cwz.googlegroups.com>
Source record: 64358

> When a bundle of wires ducks under another in the direction of current flow, the current
> has to migrate to the outside again, <snip>

> There's no question that it happens

> Books, and to a lesser extent the web. Information about this is
<snip>
> I have a great deal of respect for his experience, measurements, and opinions

Again, interesting, but what's been outlined so far is not scientific.
For something of this nature to be of any utility, it must be grounded
in science.

1498. Re: Aux Antenna for Wlakman FM radio?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 13:51:50 UTC
From: Ken C <cprstn54@nospam.att.net>
Message-ID: <sq8ev1ledr52hi0hhsa25v9lhbkav95r57@4ax.com>
Source record: 64359

On Fri, 17 Feb 2006 04:27:04 GMT, "SignalFerret"
<signalferret@verizon.net> wrote:

>The shield on the headphone cable is used as the antenna for such devices.
>As for matching, how good of a match can a headphone cable be? Inside most
>radios the connection is a single cap, in the pF range, between the jack and
>the RF front end.

Hmm. Well, the shield on the shielded stereo cable between the player
and the helmet sound module might pick up some interference from the
motorcycle's electrics. What components would you suggest that I
install on that cable to filter that out? Basically, I would want to
filter out everything that is not audio frequency (20 Hz - 20 kHz) or
between 88-108 MHz.

The player headphones have a main cable that is 29" long before
splitting to each headphobne. This is 1/4 wave for FM BCB. I could,
as you suggest, splice in a 29" wire at the player end of the cable.

Ken KC2JDY

1499. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:16:48 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <SeLTLxIQxy9DFAtf@ifwtech.co.uk>
Source record: 64360

Mike Speed wrote:

Roy Lewallen had written:
>> When a bundle of wires ducks under another in the direction of
>>current flow, the current > has to migrate to the outside again, <snip>
>
>> There's no question that it happens
>
>
>> Books, and to a lesser extent the web. Information about this is
><snip>
>> I have a great deal of respect for his experience, measurements, and opinions
>
>Again, interesting, but what's been outlined so far is not scientific.
>For something of this nature to be of any utility, it must be grounded
>in science.
>

The skin effect is most thoroughly grounded in science. What you seem to be unaware of is that it's *so* well-known that, in any discussion about RF engineering, the scientific proof of its existence can be 'taken as read'.

For a detailed scientific proof of the skin effect, try:
http://tinyurl.com/brpq6

That proof is more general - and hence more powerful - than the ones you find in most engineering texts such as Terman. It demonstrates that, if an RF current is flowing across *any* conducting surface (not restricted to any particular shape or cross-section) and also for *any reason* (not limited to any particular kind of circuit or device) then there will be a skin effect.

That's the science of it; now back to the engineering.

What Roy said was quite correct. Braid is a kind of composite conducting surface, made up of the exposed surfaces of the individual strands. The skin effect means that the outside of the composite surface must always carry the highest RF current density (amperes per square micron of cross-sectional area). So whenever the weave of the braid makes an exposed strand dive below the surface, the RF current must cross over to the next touching strand that is still exposed. A little way further along the braid, it will have to cross over again... and again, and again.

It is hard to visualize exactly how these crossovers happen on a microscopic scale, but the physics of the skin effect dictate that it *must* happen somehow. Obviously physical and electrical contact between the two strands is required. We also know that electrical contact works better when there is a strong force pushing the two conductors together, because the force deforms the two surfaces into each other, to give a greater contact area.

The key fact is that the contact forces between strands in a braid are very small and unreliable. That means the RF resistance of a length of braid will be significantly higher than for a smooth conductor with the same external surface area.

Then it gets worse. Even the thinnest film of corrosion can disrupt the contact between copper strands in a braid. Unless the current density is large enough to break down this film, it means the RF current is forced to flow into the interior of the braid. Again the exact geometry is hard to visualize, but again the physics dictate that if an isolated 'filament' of current is forced to flow beneath a conducting surface, the voltage drop per unit length must increase - in other words, the RF resistance must increase.

Scientific deduction has told us that all these effects must exist. Whatit cannot tell us is how big they are in real braid, or how important they are in practice. For that we'll need some measured numbers.

You have two choices here: either look for existing measurements from people who have demonstrated their competence and scientific approach; or do it yourself.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1500. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:20:28 UTC
From: David Shrader <W1MCE@comcast.net>
Message-ID: <p4mdnRs07_SxsGrenZ2dnUVZ_s2dnZ2d@comcast.com>
Source record: 64361

Mike, leakage and inductive and gap effects in woven braid has been in
the science literature for over 40 years. To keep this discussion
focused I have emailed one specific reference to Roy. Hopefully Roy has
the time and resources to do the research and make the results available
to us in terms we can understand.

Mike Speed wrote:

>> When a bundle of wires ducks under another in the direction of current flow, the current
> has to migrate to the outside again, <snip>
>
>
>>There's no question that it happens
>
>
>
>>Books, and to a lesser extent the web. Information about this is
>
> <snip>
>
>>I have a great deal of respect for his experience, measurements, and opinions
>
>
> Again, interesting, but what's been outlined so far is not scientific.
> For something of this nature to be of any utility, it must be grounded
> in science.
>

1501. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:23:45 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <p4mdnRo07_RssGrenZ2dnUVZ_s2dnZ2d@comcast.com>
Source record: 64362

Resonance and VSWR are NOT related!

My 75 meter mobile antenna is resonant at 3.94 MHz. My VSWR is 5:1.

You are measuring two different things.

The dipper is a very nice tool. I owned the Heathkit unit in the olden days. I now use the Military surplus AN/PRM 10.

KG0WX wrote:

> OK - I just bought a new in the box 1955 Heath GD-1B grid dipper
> with the extra low band coil set. $25. The dipper works FB and I
> used an old SO-239 chassis jack plus a bit of 22g wire and a cut
> down pill bottle to make a 4t coupling loop big enough to "dip" -
> that is I inserted the dipper's coil inside the pill bottle coil
> attached
> to my feedline.
>
> Now here is where I make myself look stupid - My antenna's best
> SWR is at 7185 with a 1.1:1 but the dipper showed max dip at
> 6990 (I tuned into the dipper with my K2). What's going on here?
>
> Someone educate me.....lol
>
> 73's de Ken KG0WX
>

1502. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:26:14 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vebk92jcjnlbf@corp.supernews.com>
Source record: 64363

dansawyeror wrote:
> Roy,
>
> Thank you. It is a quick experiment to build a test coax coil and
> measure the Q. That should produce enough evidence to test a counterpoise.
>
> In the mean time the research to build a coil out of copper tubing
> continues. So far the only alternative I can conceive is to make a
> wooden form and wrap the coil on the outside.
>
> Thanks again - Dan

A copper tube will definitely produce an improved Q. If you do make comparative measurements of ones made from tubing and from coax, please post the results.

A real problem in maintaining the Q of coils outside in the weather is keeping water from getting between the turns. Water is very lossy stuff at HF, and it has a very high dielectric constant. The two combine to make it a real Q killer if it gets into any region of high electric field strength. A bit of accumulated dust mixed with the water makes it worse yet. So if you anticipate leaving the coil on a form and exposed to the weather, also check the Q when the coil is wet. See http://www.eznec.com/Amateur/Articles/Portable_Feed_Lines.pdf for results of measurements of wet and dry 300 ohm twin lead. It's not quite the same situation, but the loss mechanism is essentially the same.

I recommend that you do some modeling or just simple calculating, if you haven't done so already, to see just how high the Q has to be in order to keep overall loss acceptable.

One final thing to keep in mind -- I've heard reports of poor performance of elevated verticals being tracked down to badly imbalanced currents in the radials. Apparently even small physical differences among the radials can cause one or two to hog all the current. If this is so, it seems to me that making them more sharply tuned by inductive loading might make this effect even worse. So when you get the thing up, I suggest measuring the current in each radial. This is easily done with a toroid core with a few turns for the secondary and a fairly low R across the secondary. It's been discussed a number of times on this newsgroup, the last time quite recently.

Good luck!

Roy Lewallen, W7EL

1503. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:29:53 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vebr41b1une5d@corp.supernews.com>
Source record: 64364

KG0WX wrote:
> OK - I just bought a new in the box 1955 Heath GD-1B grid dipper
> with the extra low band coil set. $25. The dipper works FB and I
> used an old SO-239 chassis jack plus a bit of 22g wire and a cut
> down pill bottle to make a 4t coupling loop big enough to "dip" -
> that is I inserted the dipper's coil inside the pill bottle coil
> attached
> to my feedline.
>
> Now here is where I make myself look stupid - My antenna's best
> SWR is at 7185 with a 1.1:1 but the dipper showed max dip at
> 6990 (I tuned into the dipper with my K2). What's going on here?
>
> Someone educate me.....lol
>
> 73's de Ken KG0WX

1. Although it's usually close for simple antennas, the point of minimum SWR isn't necessarily the resonant frequency. The dipper measures resonance.

2. The coupling loop adds inductance to the circuit, lowering its resonant frequency.

Roy Lewallen, W7EL

1504. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:38:31 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vecbaciouhcda@corp.supernews.com>
Source record: 64365

Mike Speed wrote:

> Again, interesting, but what's been outlined so far is not scientific.
> For something of this nature to be of any utility, it must be grounded
> in science.

I can assure the readers that all the effects I've discussed are soundly based on very well known principles. Anyone truly interested in the topic can find ample confirmation of what I've said, although it might take a bit of digging. The Johnson and Graham text is an excellent place to start.

What's lacking is good measured data for typical shields, and even that's going to have limitations because of the wide variations among cables and manufacturers. But even some rules of thumb will be useful.

But you've shown an interest in the topic. Why don't you make some measurements of coils made from tubing and from coax shields and report back?

Roy Lewallen, W7EL

1505. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 14:57:54 UTC
From: nm5k@wt.net
Message-ID: <1140274674.116569.208960@g47g2000cwa.googlegroups.com>
Source record: 64366

Just my 29 cents worth... I don't think using real thick
copper tube, coax shield, etc, will really be worth the trouble,
vs using a standard wire wound coil on a form. There is some
increase in performance , but overall it will be fairly small unless
the
wire used in the standard coil is very thin. Once you get to about 1mm
thickness, you will have fairly decent performance. 2mm is even better,

and any increase using a thick tubing will basically be a waste of
time.
I think anyway... The spacing of the wires, and keeping water, etc
from between the coil windings is more important. You can wind a
coil using 14 gauge wire and have a very high Q coil, if wound right.
Even 18 or 16 gauge won't be too bad as long as there is the proper
spacing between windings. Again, just my opinion from building various
mobile antenna coils... I'm pretty picky about my mobile antennas, but
I don't bother using "fat" coil conductors. To me, not worth the extra
trouble, weight, etc. I don't think the extra performance is that great
vs any regular wound coil , that has the proper pitch. With the thinner
wire coils, it's using a close winding pitch, with the wires nearly
touching that makes for excess loss. Not really the thin wire in
itself
unless it's super thin like magnet wire. And yes, I avoid braid for
anything
carrying rf. Even my grounding straps are solid.
MK

1506. Ping: Roy

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 16:18:34 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <65iev1ht9bj8heqgfsm92952vh8utpnujd@4ax.com>
Source record: 64367

Roy,

Are you getting my emails re: cable?

Wes

1507. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 16:20:38 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F74956.2060207@comcast.net>
Source record: 64368

The devil is in the details. Modeling shows large coils with 1 mm wire have a Q in the range of a few hundred. On the other hand a coil with 12 mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6 Ohms while the 12 mm coil is on the order of 1 Ohm.

Given these model results it says there is a significant difference between 1 mm and 12 mm coils.

nm5k@wt.net wrote:
> Just my 29 cents worth... I don't think using real thick
> copper tube, coax shield, etc, will really be worth the trouble,
> vs using a standard wire wound coil on a form. There is some
> increase in performance , but overall it will be fairly small unless
> the
> wire used in the standard coil is very thin. Once you get to about 1mm
> thickness, you will have fairly decent performance. 2mm is even better,
>
> and any increase using a thick tubing will basically be a waste of
> time.
> I think anyway... The spacing of the wires, and keeping water, etc
> from between the coil windings is more important. You can wind a
> coil using 14 gauge wire and have a very high Q coil, if wound right.
> Even 18 or 16 gauge won't be too bad as long as there is the proper
> spacing between windings. Again, just my opinion from building various
> mobile antenna coils... I'm pretty picky about my mobile antennas, but
> I don't bother using "fat" coil conductors. To me, not worth the extra
> trouble, weight, etc. I don't think the extra performance is that great
> vs any regular wound coil , that has the proper pitch. With the thinner
> wire coils, it's using a close winding pitch, with the wires nearly
> touching that makes for excess loss. Not really the thin wire in
> itself
> unless it's super thin like magnet wire. And yes, I avoid braid for
> anything
> carrying rf. Even my grounding straps are solid.
> MK
>

1508. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 16:55:37 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <rtGdnR4wyLIUzGrenZ2dnUVZ_tidnZ2d@comcast.com>
Source record: 64369

Roy Lewallen wrote:

SNIPPED
> What's lacking is good measured data for typical shields, and even
> that's going to have limitations because of the wide variations among
> cables and manufacturers. But even some rules of thumb will be useful.
>
> But you've shown an interest in the topic. Why don't you make some
> measurements of coils made from tubing and from coax shields and report
> back?
>
> Roy Lewallen, W7EL

I've been away from that measurement field [integrity of coaxial braid shields] for almost 15 years. Measured data does exist for the effects of shield parameters [weave angle, optical coverage, # strands {picks}, wire gauge, etc.] based on using traveling wave excitation of the braid itself in either quadraxial test fixtures or over a controlled ground plane with known Zo between the cable and the plane. Test methods are IEEE defined [after 15+ years I can't recall a specific IEEE Test Method reference]. These quantify a 'leakage inductance'.

1509. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 17:16:51 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <vclev1h4ij3nqlsq6ujn7tv9p9m7pgo9l0@4ax.com>
Source record: 64370

On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>The devil is in the details. Modeling shows large coils with 1 mm wire have a Q
>in the range of a few hundred. On the other hand a coil with 12 mm tubing has a
>Q of about 2000. The R of the 1 mm coil is about 6 Ohms while the 12 mm coil is
>on the order of 1 Ohm.
>
>Given these model results it says there is a significant difference between 1 mm
>and 12 mm coils.

Hi Dan,

In the details, indeed.

What is the LENGTH of wire in this 6 Ohm resistor? What is the LENGTH
of wire in this 1 Ohm resistor? How many turns are in these "large
coils?" What is their diameter? What is their solenoid length?

Without these details, there is nothing said that is significant.

73's
Richard Clark, KB7QHC

1510. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 17:46:51 UTC
From: RST Engineering <jim@rstengineering.com>
Message-ID: <a7969$43f75d89$42512991$9219@DIALUPUSA.NET>
Source record: 64371

Hm. Just searched the FCC database for a SPEED, MI... and nothing pops.
QRZ.COM gives quite a few (39) hits for SPEED, but none with the first name
or middle initial that you can make a "mike" from.

Hm.

Jim

"Mike Speed" <mike8s2@yahoo.com> wrote in message
news:1140266886.722102.279930@z14g2000cwz.googlegroups.com...

1511. Re: help appreciated with unusual j pole feed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 18:20:59 UTC
From: kevin <khorseman@lineone.net>
Message-ID: <dt7oj2$7pr$1@newsg1.svr.pol.co.uk>
Source record: 64372

hi fred, thanks for your input, if i read you correctly this is cut for 2mtr and the one i'm working on is actually a marine vhf, (usually I think cut for 156.8mHz), i realise this is a ham group but hoped it would be ok to ask here.

i have found some online calculators, maybe i can use the information from them to recut this design.

thanks fred

kevin

"Fred McKenzie" <fmmck@aol.com> wrote in message news:fmmck-1402061352200001@aca8cd90.ipt.aol.com...
> In article <dsitdnopv1@news8.svr.pol.co.uk>, "kevin"
> <khorseman@lineone.net> wrote:
>
> > hi there, i'm looking for some help with a j pole antenna, it's actually a
> > vhf marine antenna so i hope it will be ok to ask here.
>
> Kevin-
>
> One version of the J-Pole antenna has the cable connected an inch or two
> above the connection between the two vertical rods. The following article
> from my archives, shows how it could be connected, except it is based on
> Television Twin Lead instead of the two rods yours has. If you use a
> mono-spaced font like Courier, it should be clear. The conductor above
> the 1/4" gap is not essential, it just comes with the twinlead!
>
> Fred
>
> ---------------
> 2M Jpole with 300 ohm twin lead
> From: kinsman@ektools.UUCP (Andrew A. Kinsman)
> Newsgroups: rec.ham-radio
> Organization: Eastman Kodak, Dept. 47, Rochester NY
>
> The following is a description of a J-Pole antenna made from 300 ohm
> TV twin-lead. Quite a few of the hams in the area have successfully
> built one or more of these antennas. They have quite a few advantages
> which include improved performance for 2-meter HTs, portability, and
> last, but never least, they are inexpensive.
>
> | | do not short this end.

> | |
> | |
> | |
> | |
> | |
> 54" | |
> | |
> | |
> | |
> | 1/4" gap
> | |
> | |
> | | 16 3/4"
> coax ctr conductor=>* *<= coax shield
> | |
> 1 1/4" | |
> -*-
> solder the twin leads together at bottom
>
> 1. Start with 54 1/2" of TV twin lead (foam core does not work as well)
> 2. Strip 1/2" of insulation at bottom and solder wires together.
> 3. Measure 1 1/4" from soldered wires and strip insulation on both
> sides. This is the solder point for a coax feedline.
> 4. Measure 16 3/4" from bottom and cut out 1/4" notch on one side.
> 5. Feed with a length of RG58U coax. Tape coax at feedpoint to the
> twin lead for strength and weather protection.
>
> I have also attached an alligator clip to the plastic on the top of
> the antenna in order to conveniently hang it. I am successfully using
> one in my attic to avoid any CCNR problems. I have another that I can
> take with me camping, sailing, etc.
>
> This design has appeared on many BBSs and in club newsletters; the
> earliest reference that I know of is a Jan. 1984 D.A.R.C. antenna
> article by James Burks, KA5QYV.
>
> Enjoy,
> N6UBM
> ------------------

1512. Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 18:31:22 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt7p5p$2ud$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64373

There are inumerable uses for solenoidal wound coils.

Over the years there have been been hundreds of discussions and contributions to newsgroups about the Q of single-layer solenoid coils. But what is ENTIRELY missing is the measured data for particular coil dimensions and frequency.

Does nobody have a Q meter? It would appear nobody has any confidence in Q meters in the HF range.

QUESTION:

What is the measuring accuracy of the best commercial Q meters in the ranges of 1 to 100, 100 to 500, 500 to 2000 and above?

Or do not manufacturers state measuring accuracy? Are they themselves uncertain of what its all about?

A subsidiary question is what use is made of Q values after a measurement has been made? Does an inacurate Q value matter very much anyway?

Please give numbers in your reply. For once I confess to a minor troll. But I hope I get a few sensible answers to sensible questions.

Nil answers will be considered to be of equal consequence to the others.

Reg, G4FGQ

1513. Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 19:06:19 UTC
From: stananger <stananger@********.***>
Message-ID: <LeKJf.1049$p13.631@trnddc08>
Source record: 64374

I would like to install an under eave antenna at my house.
Mostly for listening but maybe some low power transmitting.
What I need is some input from all the experts here as to what supports
would work best. Also I dont want it to upset the other half
too much so it would have to be "pleasing" to the eye or damn near
invisible. As I dont have any plans or thoughts as to what would work best
I am open to all serious suggestions and ideas. It will be a loop fed with
open wire feeders is all I have in mind at this time.

Stan
AH6JR

1514. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 19:45:55 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <52kev19u0mrk27424soa8q7m2co00uojta@4ax.com>
Source record: 64375

A visit to the kitchen supplies of your local department store will
reveal a large assortment of coil forms and covers. Until recently I
have limited my antenna work to vhf-uhf. In that circumstance I have
frequently punched a snug hole in a plastic container bottom and
placed it in a bell shaped fashion over lumped LC components. It has
worked best for me to leave the bottom open for ventilation.

I have not done it yet but preliminary plans for a base loaded 160
meter vertical have me considering an inverted plastic garbage can as
a weather shield. The EZNEC models may spare me the effort on that
one!

On Sat, 18 Feb 2006 06:26:14 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>dansawyeror wrote:
>> Roy,
>>
>> Thank you. It is a quick experiment to build a test coax coil and
>> measure the Q. That should produce enough evidence to test a counterpoise.
>>
>> In the mean time the research to build a coil out of copper tubing
>> continues. So far the only alternative I can conceive is to make a
>> wooden form and wrap the coil on the outside.
John Ferrell W8CCW

1515. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 19:50:30 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <Y_WdnWTqk7Ib52re4p2dnA@comcast.com>
Source record: 64226

stananger wrote:
> I would like to install an under eave antenna at my house.
> Mostly for listening but maybe some low power transmitting.
> What I need is some input from all the experts here as to what supports
> would work best. Also I dont want it to upset the other half
> too much so it would have to be "pleasing" to the eye or damn near
> invisible. As I dont have any plans or thoughts as to what would work best
> I am open to all serious suggestions and ideas. It will be a loop fed with
> open wire feeders is all I have in mind at this time.
>
> Stan
> AH6JR

Go to Home Depot, or equivalent, and buy 500 feet of wire the same color as your house. [Helps keep things invisible]

Run a loop under the eaves all around the house. Bring the ends of the loop to ground level. Electrician staples with insulated facing will hold the wire in place.

Feed the antenna at ground level through a small auto tuner similar to the ICOM AH-4, or one of the SGC units. Feed the Rf and control wires from the tuner into the shack through a window sill or equivalent.

When finished, you will have a small box on or near the ground, hopefully on the back of the house, and two nearly invisible wires from the tuner to the loop.

An alternative feed is to use end feed against a ground rod driven into the soil. An advantage here is that ground wire radials can be added to the rod and stapled below the grass line for a good counterpoise.

1516. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 19:53:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt7u0h$ia1$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64227

"Roy Lewallen" wrote
> I can assure the readers that all the effects I've discussed are
soundly
> based on very well known principles.

==========

Roy, you seem to have forgotten proximity effect.

If one calculates the Q of a coil from HF skin resistance of the wire and from coil inductance, one gets ridiculously high values of Q.

Other producers of coil calculators appear to have forgotten this too. That's if they were ever aware of it.

I have a coil, about 4 inches long, about 1.7 inches in diameter, with about 90 close-wound turns of 1mm diameter wire, which has an inductance of about 100 micro-henrys. The measured value of Q at 1.9 MHz is about 240.

This makes the proximity effect about 3.5 or 4 times the effect of simple HF wire skin resistance. This is a large amount.

This is the first time such information has been appeared on a newsgroup or published in bibles anywhere else. They didn't have Q meters 120 years ago, in Heaviside's time, when such factors were first considered.

My findings are incorporated in program SOLNOID3 which estimates Q (and other characteristics) for coils of various dimensions. There are, of course, other factors which influence Q which is a relatively unimportant coil characteristic.

What do you do with Q once you have taken the trouble to find it? The other more important things will already be apparent.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

1517. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 20:09:30 UTC
From: dplatt@radagast.org
Message-ID: <11vevnqj56grv22@corp.supernews.com>
Source record: 64229

In article <LeKJf.1049$p13.631@trnddc08>,
stananger <stananger@********.***> wrote:

>I would like to install an under eave antenna at my house.
>Mostly for listening but maybe some low power transmitting.
>What I need is some input from all the experts here as to what supports
>would work best. Also I dont want it to upset the other half
>too much so it would have to be "pleasing" to the eye or damn near
>invisible. As I dont have any plans or thoughts as to what would work best
>I am open to all serious suggestions and ideas. It will be a loop fed with
>open wire feeders is all I have in mind at this time.

One possibility would be the sort of standoffs which have
traditionally been used to support runs of 300-ohm twinlead. They're
something like a long-shafted eye bolt, with a plastic insert in the
center of the eye to hold the twinlead away from the metal. Some of
these are intended for mounting on a metal strap on an antenna mast
(these have machine threads on their shaft), while others have a
wood-screw-like threading and a sharp point and can be screwed into a
wood beam. You'd probably want the latter. Radio Shack still sells
'em (15-853, $2.99 for a set of four) and they're probably available
elsewhere as well.

Another possibility would be to use short pieces of PVC or fiberglass
tubing, mounted to the eves using one- or two-screw conduit brackets.
4"-6" pieces of 3/4" or 1" PVC tubing, with 1/4" holes cross-drilled
in one end for the wire, then primed and painted to match your house's
color scheme, might be cosmetically-acceptable.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1518. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 20:11:44 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <1ZGdnWnvTqTP42reRVn-rw@adelphia.com>
Source record: 64228

Reg Edwards wrote:
> There are inumerable uses for solenoidal wound coils.
>
> Over the years there have been been hundreds of discussions and
> contributions to newsgroups about the Q of single-layer solenoid
> coils. But what is ENTIRELY missing is the measured data for
> particular coil dimensions and frequency.
>
> Does nobody have a Q meter? It would appear nobody has any confidence
> in Q meters in the HF range.

I just purchased an old Boonton 160A Q meter that seems to still be working, correctly. It supplys test waves from 50kHz to 75 MHz.

It was made in 1949 (the same year I was), is a 3 tube design, including the supply rectifier, and probably last calibrated when I was wearing diapers, but everything on it still seems okay. I have been using it to compare different coil and ferrite rod designs to improve my ability to build optimal rod antennas.

> QUESTION:
>
> What is the measuring accuracy of the best commercial Q meters in the
> ranges of 1 to 100, 100 to 500, 500 to 2000 and above?

Absolute accuracy is hard to quantify, because the connection losses, radiation losses and near field losses vary a lot, depending of the setup. The 160A has made a valiant attempt to have a low loss tuning capacitor available to resonate the coil at various frequencies, but if I pad this with an external capacitor, I never achieve as high a Q reading as I do with just the internal cap. The best I can do is compare variations with a single setup. In other words, if i can make two tests with a single setup, I can clearly tell which variation has the higher Q. But if I sit closer or further away from a large coil, it changes both results. At high Q, very little things count a lot. Measuring a large coil that is 6 inchs from any metal surface, and then putting it in a metal box, an inch from the side, kills the Q, anyway.

The scale on the 160A ranges from 20 to 200, but you can double that with another setting that cuts the excitation. However, at Qs above 100, the tuning is so touchy that I often can't find the exact peak.

> Or do not manufacturers state measuring accuracy? Are they themselves
> uncertain of what its all about?
>

> A subsidiary question is what use is made of Q values after a
> measurement has been made? Does an inacurate Q value matter very much
> anyway?

For tuning and filter purposes, it predicts the bandwidth. For rod antenna purposes, Q gets into the region of space the antenna couples to. The higher the Q, the larger volume of space the antenna pulls energy from.

I have also had some success at low frequency (below 1 MHz) measuring tank Q by driving the tank through a 10X scope probe, and measuring the resonant voltage with an AC volt meter through a second 10X scope probe. I find the frequency that produces the peak voltage, then tune up and down to find the two frequencies that produce .707 of that peak. The Q is the square root of the product of those two frequencies divided by their difference. I don't know if it is the loading effect of the probes, or lack of calibration for the Boonton, but I consistently get lower Q by this method than the Boonton shows. The Boonton may be 1.2 to 1.5 times higher. But, at least both methods allow comparison of variations, so I can have a "getting warmer" indication of which variations are better.

1519. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 20:44:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AGLJf.58370$PL5.6878@newssvr11.news.prodigy.com>
Source record: 64230

stananger wrote:
> I would like to install an under eave antenna at my house.
> Mostly for listening but maybe some low power transmitting.
> What I need is some input from all the experts here as to what supports
> would work best. Also I dont want it to upset the other half
> too much so it would have to be "pleasing" to the eye or damn near
> invisible. As I dont have any plans or thoughts as to what would work best
> I am open to all serious suggestions and ideas. It will be a loop fed with
> open wire feeders is all I have in mind at this time.

I have used insulated cup hooks screwed into the wood through
which I ran a loop of solid insulated wire. Both cup hooks
and insulation are available in a number of colors.
--
73, Cecil http://www.qsl.net/w5dxp

1520. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 21:24:43 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11vf40oo8o04l19@corp.supernews.com>
Source record: 64231

To extend from Ian's remarks:

In some critical applications, the use of coax cable with braided outer Cu conductor can cause problems.

RF charge flow (current) in the braid experiences a non-linear circuit resulting in harmonic distortion or IM or both. Just made coax can have a very low level of non-linearity with the effect increasing with age (and probable corrosion). Ag plated Cu braid seems to have less of the non-linear effect - perhaps because of a poorer mechanism for current to move from one wire to another.
The effects are small, but can be important in certain applications.
Solid Cu outer conductors have advantages beyond mechanical and power-handling.
73 Mac N8TT
--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Ian White GM3SEK" <gm3sek@ifwtech.co.uk> wrote in message
<snip>

>
> Then it gets worse. Even the thinnest film of corrosion can disrupt the
> contact between copper strands in a braid. Unless the current density is
> large enough to break down this film, it means the RF current is forced
> to flow into the interior of the braid. Again the exact geometry is hard
> to visualize, but again the physics dictate that if an isolated
> 'filament' of current is forced to flow beneath a conducting surface,
> the voltage drop per unit length must increase - in other words, the RF
> resistance must increase.
>
> Scientific deduction has told us that all these effects must exist.
> Whatit cannot tell us is how big they are in real braid, or how
> important they are in practice. For that we'll need some measured
> numbers.
>
> You have two choices here: either look for existing measurements from
> people who have demonstrated their competence and scientific approach;
> or do it yourself.
>
>
>
> --
> 73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
> http://www.ifwtech.co.uk/g3sek

1521. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 22:02:14 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F79966.3070004@comcast.net>
Source record: 64232

These results were from Reg's c_poise program. The band is 75 meters and the coils were about 70 uH. The coils were a relatively large diameter, on the order of a meter. The wire lengths were about 20 meters. By varying the length the coil, the coil wire may be varies from 1mm to 12mm.

Richard Clark wrote:
> On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
> <dansawyeror@comcast.net> wrote:
>
>
>>The devil is in the details. Modeling shows large coils with 1 mm wire have a Q
>>in the range of a few hundred. On the other hand a coil with 12 mm tubing has a
>>Q of about 2000. The R of the 1 mm coil is about 6 Ohms while the 12 mm coil is
>>on the order of 1 Ohm.
>>
>>Given these model results it says there is a significant difference between 1 mm
>>and 12 mm coils.
>
>
> Hi Dan,
>
> In the details, indeed.
>
> What is the LENGTH of wire in this 6 Ohm resistor? What is the LENGTH
> of wire in this 1 Ohm resistor? How many turns are in these "large
> coils?" What is their diameter? What is their solenoid length?
>
> Without these details, there is nothing said that is significant.
>
> 73's
> Richard Clark, KB7QHC

1522. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 22:09:35 UTC
From: Dave Holford <holford@sympatico.ca>
Message-ID: <43F79B1F.86148B6A@sympatico.ca>
Source record: 64233

stananger wrote:

> I would like to install an under eave antenna at my house.
> Mostly for listening but maybe some low power transmitting.
> What I need is some input from all the experts here as to what supports
> would work best. Also I dont want it to upset the other half
> too much so it would have to be "pleasing" to the eye or damn near
> invisible. As I dont have any plans or thoughts as to what would work best
> I am open to all serious suggestions and ideas. It will be a loop fed with
> open wire feeders is all I have in mind at this time.
>
> Stan
> AH6JR

I have considered the same idea, however my soffit, fascia and eavestrough are all metal, and not electrically connected to each other. Does anyone have any suggestions on how far below these I would have to string my wire?

I have also considered bonding both the individual sections of each, and bonding all three together; but I'm not sure how successful such an attempt would be.

Dave
VE3HLU

1523. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 23:24:18 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <43F7ACBD.2A293466@shaw.ca>
Source record: 64234

stananger wrote:
>
> I would like to install an under eave antenna at my house.
> Mostly for listening but maybe some low power transmitting.
> What I need is some input from all the experts here as to what supports
> would work best. Also I dont want it to upset the other half
> too much so it would have to be "pleasing" to the eye or damn near
> invisible. As I dont have any plans or thoughts as to what would work best
> I am open to all serious suggestions and ideas. It will be a loop fed with
> open wire feeders is all I have in mind at this time.
>
> Stan
> AH6JR

I ran a loop on the roof using plastic 35mm film containers as standoffs. I see no reason why you couldn't hang them under the eaves. A small dab of silicone seal was sufficient to glue the bottles in place. I used a soldering iron tip to put holes into and out of the bottles and strung the wire through them. My downlead was light 300 ohm twinlead. The antenna worked well and was up for a few years. A simple firm pull removed the bottles when I moved and didn't leave any damage on the shingles.
I didn't worry about things like radiation angles, radiation resistance, UV deterioration and all those things that can drive you nuts if you think about them long enough -- I just worked loads of stations and had a pile of fun.
It's cheap and simple.

Irv VE6BP
--

Diagnosed Type II Diabetes March 5 2001
Beating it with diet and exercise!
297/215/210 (to be revised lower)
58"/43"(!)/44" (already lower too!)

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

1524. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 23:25:38 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <43F7AD0D.60B0282A@shaw.ca>
Source record: 64235

Dave Holford wrote:
>
> stananger wrote:
>
> > I would like to install an under eave antenna at my house.
> > Mostly for listening but maybe some low power transmitting.
> > What I need is some input from all the experts here as to what supports
> > would work best. Also I dont want it to upset the other half
> > too much so it would have to be "pleasing" to the eye or damn near
> > invisible. As I dont have any plans or thoughts as to what would work best
> > I am open to all serious suggestions and ideas. It will be a loop fed with
> > open wire feeders is all I have in mind at this time.
> >
> > Stan
> > AH6JR
>
> I have considered the same idea, however my soffit, fascia and eavestrough are
> all metal, and not electrically connected to each other. Does anyone have any
> suggestions on how far below these I would have to string my wire?
>
> I have also considered bonding both the individual sections of each, and
> bonding all three together; but I'm not sure how successful such an attempt
> would be.
>
> Dave
> VE3HLU

I used pill bottles that were about three inches long. This placed the wire
about 2-1/2 inches above the shingles.

Irv VE6BP
--

Diagnosed Type II Diabetes March 5 2001
Beating it with diet and exercise!
297/215/210 (to be revised lower)
58"/43"(!)/44" (already lower too!)

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

1525. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 23:50:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt8brj$hh0$2@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64236

Q meters, above the range of 150, fall into the same category as so
called SWR meters above the range of 1.5

Neither are of much use. Just an opinion!

Reg.

1526. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-18 23:50:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt8bri$hh0$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64237

Just hang up some wire and see what happens.

I make no predictions but you will probably be pleased with results.

Reg.

1527. Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:15:07 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <n3hfv1l2thdrndmhbop3rn2od8u9gqvq47@4ax.com>
Source record: 64238

In my quest to understand Smith Charts better I ran across a very interesting site at Agilent
http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
Unfortunately, it would not work since I did not have Java on my machine. A little Google time later, I located the necessary free download (after reading of legal maneuvers) and installed it. Then the link worked fine. Nice site, very helpful.

Since they offer a free download I thought it best to capture my own copy of this for the future. After I download & unzip it, it does not want to function from my machine. I would rather spend the computer time with antennas rather than trying to figure out this computer puzzle. Anyone have a SIMPLE solution?
TIA,
John Ferrell W8CCW

1528. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:24:37 UTC
From: Fabian Kurz <usenet@fkurz.net>
Message-ID: <45pvmlF7tr9iU1@news.dfncis.de>
Source record: 64239

John Ferrell wrote:
> Since they offer a free download I thought it best to capture my own
> copy of this for the future. After I download & unzip it, it does not
> want to function from my machine. I would rather spend the computer
> time with antennas rather than trying to figure out this computer
> puzzle. Anyone have a SIMPLE solution?

Just downloaded it and it works without any problems. Do you
receive any error message? What do you see at the bottom of the
"SChart.html" file (which is part of the ZIP-File), where the
Java-Aplett should appear?

73,
--
Fabian Kurz, DJ1YFK/AD5UR * Dresden, Germany * http://fkurz.net/
Online Log: http://dl0tud.tu-dresden.de/~dj1yfk/log.html

1529. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:31:18 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <UQPJf.11051$UD1.386@bignews2.bellsouth.net>
Source record: 64240

> May I suggest the use of PVC pipe as a form for winding the
> coax? Tape it in place while you're "monkeying" and then fiberglass it
when
> you like what you have. (Auto supply stores sell the fiberglass for doing
> auto body work -- it's durable & light-weight.)
>
> KD6VKW
> ET USN (ret)
>
>
That sounds like a good idea - and I have used pvc forms myself.
I wonder if ecasing the coil in that 'Great Stuff' spray foam would be ample
protection ?

my 2¢
W4PMJ

1530. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:38:08 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <1pifv1l0gc9ji32ipa3os3gfma0en7nvn5@4ax.com>
Source record: 64241

On Sun, 19 Feb 2006 01:15:07 GMT, John Ferrell
<johnferrell@sprintmail.com> wrote:

>In my quest to understand Smith Charts better I ran across a very
>interesting site at Agilent
>http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
>Unfortunately, it would not work since I did not have Java on my
>machine. A little Google time later, I located the necessary free
>download (after reading of legal maneuvers) and installed it. Then the
>link worked fine. Nice site, very helpful.
>
>Since they offer a free download I thought it best to capture my own
>copy of this for the future. After I download & unzip it, it does not
>want to function from my machine. I would rather spend the computer
>time with antennas rather than trying to figure out this computer
>puzzle. Anyone have a SIMPLE solution?

Hi John,

I unzipped all the contents into a dedicated folder.

I double-clicked the file SChart.html located inside the dedicated
folder. Works fine for Firefox.

73's
Richard Clark, KB7QHC

1531. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:40:24 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <ejifv1hs48dav32h9pg79qr9gd9gm5okur@4ax.com>
Source record: 64242
Body handling: HTML body converted to readable text

Wow!
That was quick. What I see is like what happens on a HTML download
when a picture is missing. If I load the SChart.html file into
FrontPage and split the view with the source, the part that is
associated with the missing component is

This experiment requires a Java-enabled Web Browser.

I don't know if the system is unable to find the .jar or the .class
files or cannot resolve them.

My html skills are minimal and Java skills = nil.

On 19 Feb 2006 01:24:37 GMT, Fabian Kurz wrote:

>John Ferrell wrote:
>> Since they offer a free download I thought it best to capture my own
>> copy of this for the future. After I download & unzip it, it does not
>> want to function from my machine. I would rather spend the computer
>> time with antennas rather than trying to figure out this computer
>> puzzle. Anyone have a SIMPLE solution?
>
>Just downloaded it and it works without any problems. Do you
>receive any error message? What do you see at the bottom of the
>"SChart.html" file (which is part of the ZIP-File), where the
>Java-Aplett should appear?
>
>73,
John Ferrell W8CCW

1532. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 01:58:17 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <9kjfv19mg4aikb97jtkbhe68vph8jb68mj@4ax.com>
Source record: 64243

On Sat, 18 Feb 2006 17:38:08 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Sun, 19 Feb 2006 01:15:07 GMT, John Ferrell
><johnferrell@sprintmail.com> wrote:
>
>>In my quest to understand Smith Charts better I ran across a very
>>interesting site at Agilent
>>http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
>>Unfortunately, it would not work since I did not have Java on my
>>machine. A little Google time later, I located the necessary free
>>download (after reading of legal maneuvers) and installed it. Then the
>>link worked fine. Nice site, very helpful.
>>
>>Since they offer a free download I thought it best to capture my own
>>copy of this for the future. After I download & unzip it, it does not
>>want to function from my machine. I would rather spend the computer
>>time with antennas rather than trying to figure out this computer
>>puzzle. Anyone have a SIMPLE solution?
>
>Hi John,
>
>I unzipped all the contents into a dedicated folder.
>
>I double-clicked the file SChart.html located inside the dedicated
>folder. Works fine for Firefox.

Same here. Maybe he's using a non-standard browser like IE [g].

Another option: http://www.qsl.net/ac6la/xlzizl.html

1533. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 02:34:51 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <dplfv1dk39n1j00gsss0l7egh8n2cvm0cf@4ax.com>
Source record: 64244

I am using Internet Explorer 6.
That is probably the key. I will give it try on my Linux machine.
I will look into another for windows as well.

>>Hi John,
>>
>>I unzipped all the contents into a dedicated folder.
>>
>>I double-clicked the file SChart.html located inside the dedicated
>>folder. Works fine for Firefox.
>
>Same here. Maybe he's using a non-standard browser like IE [g].
>
>Another option: http://www.qsl.net/ac6la/xlzizl.html
John Ferrell W8CCW

1534. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 03:09:57 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrndvfoc5.12sm.bit-bucket@shell.config.com>
Source record: 64245

On Sun, 19 Feb 2006 02:34:51 GMT, John Ferrell wrote:
>
>>>I unzipped all the contents into a dedicated folder.
>>>
>>>I double-clicked the file SChart.html located inside the dedicated
>>>folder. Works fine for Firefox.
>>
>>Same here. Maybe he's using a non-standard browser like IE [g].
>>
>>Another option: http://www.qsl.net/ac6la/xlzizl.html

> I am using Internet Explorer 6.
> That is probably the key. I will give it try on my Linux machine.
> I will look into another for windows as well.

Works Just Fine here in konqueror and Firefox on Mandrake 10.2.

Jonesy
--
Marvin L Jones | jonz | W3DHJ | linux
38.24N 104.55W | @ config.com | Jonesy | OS/2
*** Killfiling google posts: <http//jonz.net/ng.htm>

1535. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 03:43:26 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F7E95E.5010405@comcast.net>
Source record: 64246

It works very well on Linux with mozilla.

John Ferrell wrote:
> I am using Internet Explorer 6.
> That is probably the key. I will give it try on my Linux machine.
> I will look into another for windows as well.
>
>
>>>Hi John,
>>>
>>>I unzipped all the contents into a dedicated folder.
>>>
>>>I double-clicked the file SChart.html located inside the dedicated
>>>folder. Works fine for Firefox.
>>
>>Same here. Maybe he's using a non-standard browser like IE [g].
>>
>>Another option: http://www.qsl.net/ac6la/xlzizl.html
>
> John Ferrell W8CCW

1536. Re: Thru-Wall Coax Feedthrus

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 05:32:11 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11vg0iqfnrkpkb1@corp.supernews.com>
Source record: 64247

Dear Mr. Onella: Thanks for the suggestion. I shall ask for it in the
local marine supply store.
73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:N8eIf.57771$V.14814@fed1read04...
>
> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
> news:11ucnvqhck36j37@corp.supernews.com...
> > Foam is not a good idea. It can become very difficult to remove.
> >
> > Best is to use cooper wool. It will not rust nor flake and beasties
> do
> > not eat it. The stuff has become hard to find, however.
>
> Marine supply stores sell bronze wool. I think the boaters use it for
> cleaning brass fittings, presumably without scratching them. (I used it
as
> EMI packing for some leaky old pull-boxes.)
>
> It may be close enough to copper wool to function the same.
>
>

1537. Re: New 4nec2 version

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 05:42:35 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <11vg168klbelde8@corp.supernews.com>
Source record: 64248

Dear Frank: You are welcome.
I too date to the day when one punched cards. However, for most tasks, I
find Roy's front-end greatly to speed setting up the wires. For some really
large models, I use card images.
Computations are performed on a dedicated computer that has stone-simple
hardware.
73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"Frank" <frank599@nospamtelus.net> wrote in message
news:tItHf.2202$Be4.1294@clgrps13...
> Thanks for the info Mac. I see EZNEC/4 is $600.00, compared to $795.00
for
> GNEC. I have no trouble with the FORTRAN compiled program on my PC,
> although the graphics leave a little to be desired. Not sure what I will
> do to improve it yet. Not that interested in GUI inputs, as I find it far
> easier to edit NEC code directly.
>
> 73,
>
> Frank
> VE6CB
>
>
> "J. Mc Laughlin" <jcm@power-net.net> wrote in message
> news:11usiuk6fbnjr3b@corp.supernews.com...
> > Dear Frank:
> > I run licensed NEC4 with an appropriate version of EZNEC on a PC.
The
> > OS is W2000.
> > 73 Mac N8TT
> >
> > --
> > J. Mc Laughlin; Michigan U.S.A.
> > Home: JCM@Power-Net.Net
> > "Frank" <frank599@nospamtelus.net> wrote in message
> > news:277Cf.110589$AP5.60182@edtnps84...
> > <snip>
> >>
> >> You mention "Nec 4 cards". Do you actually support NEC 4? I plan to
> > obtain
> >> a license for NEC 4 in the near future, and your interface looks

> >> interesting; The cost of GNEC from Nittany Scientific is a bit high,
but
> >> thought it is probably the only way to run NEC 4 on a PC.
> >>
> >> Frank
> >>
> >>
> >
> >
>
>

1538. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 10:49:48 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dt9igc$d6m$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64249

John, thanks for describing your detailed and recent interesting experience and your thoughts on the subject.

However, once again the question is raised - how does one calibrate a Q meter? Rhetorically, is calibration traceable to National or International Standards?

So much depends on the Q quality of the meter itself. Meter manufacturers are unable to state degrees of accuracy at various frequencies and actual values of Q. Nobody knows what the actual value actually is! Least of all the user!

Fortunately, the exact value of Q of a coil is never required. It is used only to provide coarse estimates of other quantities. And there are usually other means of finding the other quantities. They can be estimated by calculating from values which CAN be measured or estimated.

So Q meters provide support and back up for experimenters who have other means of finding the answers they are looking for. By itself a measured value of Q is inaccurate and of no use. What matters is what can be derived or guessed from it.

It is merely an intermediate variable in a chain of deductions or calculations. Above Q equal to a few hundreds it is anybody's guess.

In some ways it is similar to an SWR measurement on a line which isn't there.

Reg.

1539. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 15:03:56 UTC
From: Asimov <Asimov@-removethis-bbs.juxtaposition.dynip.com>
Message-ID: <MSGID_1=3a167=2f133.0_43f87b92@fidonet.org>
Source record: 64250

"Dot" bravely wrote to "All" (19 Feb 06 01:22:27)
--- on the heady topic of "Re: Under Eave Antenna"

Do> From: Dot <dot@dot.dot>
Do> Xref: core-easynews rec.radio.amateur.antenna:223838

Do> Depending on frequencies, there's always the "Dipole in a pole" trick
Do> where a wire or copper tube dipole is housed in a length of 1/2" PVC
Do> pipe, with a t-fitting for access to the center feed point, hung
Do> horizontally under the eves on a few bits of nylon cord. Feed it with
Do> coax dropped from the overhang through a vent. So long as you aren't
Do> 6" from aluminum siding it's usually possible to trim the dipole ends
Do> to get a decent SWR.

How does the PVC's dielectric constant affect the antenna? Is there a
lot of loss?

A*s*i*m*o*v

... Impossible - adj. Nailing Jello to a tree.

1540. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 15:04:23 UTC
From: nm5k@wt.net
Message-ID: <1140361463.620067.173510@g43g2000cwa.googlegroups.com>
Source record: 64251

>These results were from Reg's c_poise program. The band is 75 meters and the
>coils were about 70 uH. The coils were a relatively large diameter, on the order
>of a meter. The wire lengths were about 20 meters. By varying the length the
>coil, the coil wire may be varies from 1mm to 12mm.

I haven't tried that program, so don't know what it's for...
But... 70 uh is not far off from the usual inductance
needed to match a 80m mobile antenna. When using
Reg's "vertload" program, which I use for designing mobiles,
I don't see near the spread of coil loss that you see in that
program.
In vertload, to make that large a coil using 12 mm wire,
the coil diameter has to be fairly large just to be able to
fit enough turns in the appx 12 inch height I allowed for
the coil. But when comparing a like coil using 1 mm wire,
and the same coil using 12 mm wire, I only saw about
1 ohm difference, not 5. I'm not sure which is the most
accurate, but so far my real world results in mobile
whips seems to jive pretty well with vertload. I've made
a few coils with pretty thin wire, and had good results
as long as the turn ratio was ok. Ditto for fatter wire coils.
I made one that was 12 gauge and could see only a small
difference from one made with 16 gauge wire. Seemed to
shrink my bandwidth very slightly.
So...Dunno..Would have to do some tests to get the real
lowdown on the differences in loss I guess. But with the
mobiles, I came to the conclusion that real thick wire was not
really needed for a good coil, as long as the winding ratio
was right.
MK

1541. Coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 15:12:06 UTC
From: Arlon Nelson <anelson@min.midco.net>
Message-ID: <UsmdnR312tdYF2XeRVn-pg@midco.net>
Source record: 64252

I'm going to be putting up a new HyGain TH-3 beam when the weather warms up.
Which is the better coax 8214 or RG-213, my friend swears by the 8214.

Thanks

Nels W0TUP

1542. Re: Coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 15:51:41 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <l54hv1pj2kojdp9jlqf7eh0mj75vnahmo3@4ax.com>
Source record: 64253

On Sun, 19 Feb 2006 09:12:06 -0600, Arlon Nelson
<anelson@min.midco.net> wrote:

>I'm going to be putting up a new HyGain TH-3 beam when the weather warms up.
>Which is the better coax 8214 or RG-213, my friend swears by the 8214.
>

8214 is a Belden part number for an RG-8 (0.405" OD) type cable. So
if you buy 8214 you get Belden quality cable.

RG-213 is a generic part number for the same sized cable supplied by
any number of suppliers, some good, some not so good.

If it is a good supplier, then there is no difference between them.

1543. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 17:11:29 UTC
From: chuck <nospam@nospam.net>
Message-ID: <5F1Kf.443$F56.6@newsread3.news.atl.earthlink.net>
Source record: 64254

If the soffits are not metal, they will probably be dry and just about anything will do for an insulator/standoff.

When you said "eaves", some of us assumed you meant under the lowest edge of the roof. Technically, eaves are the under part of a roof that hangs over a wall. So the overhangs at the ends of a gable roof are also called eaves. An inverted vee at one of the ends, fed in the center, would be something to consider seriously if you have a gable roof. The center would be perhaps 18 feet above ground.

On the other hand, if you have a hip roof, then a wire under the eaves will be entirely horizontal and approximately eight feet high. Such an antenna will exhibit a near-vertical radiation pattern and it will not be much of a performer for DX on the HF bands.

Good luck

Chuck

Reg Edwards wrote:
> Just hang up some wire and see what happens.
>
> I make no predictions but you will probably be pleased with results.
> ----
> Reg.
>
>

1544. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 17:52:26 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <87SdnUlqsvC2MmXenZ2dnUVZ_tudnZ2d@adelphia.com>
Source record: 64255

Reg Edwards wrote:
> John, thanks for describing your detailed and recent interesting
> experience and your thoughts on the subject.
>
> However, once again the question is raised - how does one calibrate a
> Q meter? Rhetorically, is calibration traceable to National or
> International Standards?

Q is the ratio of two values (and several different pairs of values can be used to arrive at the same end result). For a coil, one ratio that produces a value of Q is the peak energy stored during an AC cycle to the total energy dissipated during a cycle. If you can measure those two quantities, separately, you can calculate Q. But it is often much easier to work with a resonant tank and use a capacitor that is known to have a much higher Q than the coil being tested, so that you can assume that all the losses are in the coil. Then the tank circuit Q is the coil Q. This is the bases of the Boonton 160A and also the signal generator, voltmeter method I have been using.

> So much depends on the Q quality of the meter itself.

The meter quality has to be higher than the Q of the device being measured, of a compensation has to be made for the meter losses. For instance, with the signal generator voltmeter method, I have calculated the losses in the two 10X probes, to prove to myself that the errors they cause are not significant up to the highest Q values I measured, this way. I would have had to measure a Q near 1000 before they would have altered a significant digit of the measurement. But I did convince myself that energy absorption outside the coil in surrounding objects is significant, since shifting my position in my chair did change the measurement.

> Meter
> manufacturers are unable to state degrees of accuracy at various
> frequencies and actual values of Q. Nobody knows what the actual
> value actually is! Least of all the user!

Boonton originally sold Q standard coils (inductors with known Q) to be used to check the accuracy of the Q meters. I don't know how those coils calibration got back to basic measurements traced to the Bureau of standards.

> Fortunately, the exact value of Q of a coil is never required. It is
> used only to provide coarse estimates of other quantities. And there
> are usually other means of finding the other quantities. They can be
> estimated by calculating from values which CAN be measured or

> estimated.

I agree. Usually, proving that a given device has at least a certain
Q is enough, or tests made on various devices by the same method can
show which ones have higher Q than others. This is what I am doing
with the measurements.

> So Q meters provide support and back up for experimenters who have
> other means of finding the answers they are looking for. By itself a
> measured value of Q is inaccurate and of no use. What matters is what
> can be derived or guessed from it.

Q is a way to measure losses. If losses are important to the
application, Q is one way to get information that is useful. An
infrared thermal imager may be another.

> It is merely an intermediate variable in a chain of deductions or
> calculations. Above Q equal to a few hundreds it is anybody's guess.
>
> In some ways it is similar to an SWR measurement on a line which isn't
> there.
> ----
> Reg.
>
>

1545. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 18:10:47 UTC
From: Smitty <newsgroup@swronline.com>
Message-ID: <Hw2Kf.8250$yt2.7937@trndny04>
Source record: 64256

"John Ferrell" <johnferrell@sprintmail.com> wrote in message
news:n3hfv1l2thdrndmhbop3rn2od8u9gqvq47@4ax.com...
> In my quest to understand Smith Charts better I ran across a very
> interesting site at Agilent
> http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
> Unfortunately, it would not work since I did not have Java on my
> machine. A little Google time later, I located the necessary free
> download (after reading of legal maneuvers) and installed it. Then the
> link worked fine. Nice site, very helpful.
>
> Since they offer a free download I thought it best to capture my own
> copy of this for the future. After I download & unzip it, it does not
> want to function from my machine. I would rather spend the computer
> time with antennas rather than trying to figure out this computer
> puzzle. Anyone have a SIMPLE solution?
> TIA,
> John Ferrell W8CCW

Works fine on my WinXP (SP2) machine and IE6.
-Smitty kb3gun

1546. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 18:25:25 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <pK2Kf.7390$Y22.6238@clgrps12>
Source record: 64257

Not sure I understand what is going on Dan. Are you planning on loading
each radial element?

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43F79966.3070004@comcast.net...
> These results were from Reg's c_poise program. The band is 75 meters and
> the coils were about 70 uH. The coils were a relatively large diameter, on
> the order of a meter. The wire lengths were about 20 meters. By varying
> the length the coil, the coil wire may be varies from 1mm to 12mm.
>
> Richard Clark wrote:
>> On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>> <dansawyeror@comcast.net> wrote:
>>
>>
>>>The devil is in the details. Modeling shows large coils with 1 mm wire
>>>have a Q in the range of a few hundred. On the other hand a coil with 12
>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6 Ohms
>>>while the 12 mm coil is on the order of 1 Ohm.
>>>
>>>Given these model results it says there is a significant difference
>>>between 1 mm and 12 mm coils.
>>
>>
>> Hi Dan,
>>
>> In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>> resistor? What is the LENGTH
>> of wire in this 1 Ohm resistor? How many turns are in these "large
>> coils?" What is their diameter? What is their solenoid length?
>>
>> Without these details, there is nothing said that is significant.
>>
>> 73's
>> Richard Clark, KB7QHC

1547. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 18:31:12 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <habhv1dp5cn5os3rik8ppr72p1hghs61mg@4ax.com>
Source record: 64258

On Sun, 19 Feb 2006 10:49:48 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>So much depends on the Q quality of the meter itself.

Hi Reggie,

The "Q of the meter?" What a hoot. Would that be the impedance of
the handles over the resistance of the cover?

Let's also observe the Madison Avenue flair: "Q quality...." Or are
we to believe you are a proponent of measuring the Q of quality? Think
Lord Kelvinator would want a number put to it?

>Nobody knows what the actual value actually is! Least of all the user!

Let's see, if the user picks up an Ohmmeter to measure a resistance,
he doesn't initially know the resistance, he doesn't know the
accuracy, hence the meter is invalidated for existing, the user
suddenly lacks a metaphysical basis for being and all disappear in a
cloud of doubt.

>Fortunately, the exact value of Q of a coil is never required.

Now that meters no longer exist, users have evaporated, exact Q is
never required, the coil unwinds itself in existential abnegation.

>It is used only to provide coarse estimates of other quantities.

Ah! But if "It" is unknowable, "It" offers nothing - coarse or
vulgar.

>And there are usually other means of finding the other quantities.

Which then loops this logic back to the impossibilty of knowability
and these quantities suddenly dematerialize from the cosmos.

>They can be estimated by calculating from values which CAN be measured or
>estimated.

Estimates can be made of estimates - um yas, indeed! Now there's a
authentic statement of clarity and rational self-determination. Would
it be inappropriate to appreciate the irony of your attack on accuracy
where your argument is so conclusively lacking - accuracy? ;-)

>By itself a
>measured value of Q is inaccurate and of no use. What matters is what
>can be derived or guessed from it.

An excellent summary. If it is inaccurate and of no use, we can use it to derive or guess something from it.

Thanx for the opportunity,
Richard Clark, KB7QHC

1548. Re: Coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 18:47:23 UTC
From: Michael Melland <mmelland@centurytel.net>
Message-ID: <IKidnQjGwKILIGXeRVn-pQ@centurytel.net>
Source record: 64259

Hi Arlon,

I'd take a look at Davis BuryFlex (9914F) cable. I switched over ten years ago and but perhaps for hardline would never switch back to RG213 or RG8 cable.

http://www.davisrf.com/ham1/coax.htm#buryflex

Mike, W9WIS

1549. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 18:59:18 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F8C006.7030806@comcast.net>
Source record: 64260

Frank,

Good morning. Let me start at the beginning. I have a loaded vertical on 75 meters. The combination of the antenna and ground measure about 40 Ohms at the antenna. The models all show such an antenna over a perfect ground should have a radiation resistance of between 3 and 4 Ohms. That says the antenna system is less the 10% efficient.

This then is a journey to reduce ground resistance. Attempts to add radials and wire mesh to the ground have had very little if no effect. This leads to Reg's c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to a 2 meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms range.

Together this should result is a 8 Ohm system. The ratio can be directly inferred as an performance improvement of 5 to 1 or 7 db. This is worth some effort.

To answer your question the first step will be one coil and one radial. The objective is the get the antenna system close to 10 Ohms. From there I will experiment with adding radials and coils. I am not sure what to expect.

Thanks - Dan

Frank wrote:
> Not sure I understand what is going on Dan. Are you planning on loading
> each radial element?
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43F79966.3070004@comcast.net...
>
>>These results were from Reg's c_poise program. The band is 75 meters and
>>the coils were about 70 uH. The coils were a relatively large diameter, on
>>the order of a meter. The wire lengths were about 20 meters. By varying
>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>
>>Richard Clark wrote:
>>
>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>><dansawyeror@comcast.net> wrote:
>>>
>>>
>>>
>>>The devil is in the details. Modeling shows large coils with 1 mm wire

>>>>have a Q in the range of a few hundred. On the other hand a coil with 12
>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6 Ohms
>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>
>>>>Given these model results it says there is a significant difference
>>>>between 1 mm and 12 mm coils.
>>>
>>>
>>>Hi Dan,
>>>
>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>resistor? What is the LENGTH
>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>coils?" What is their diameter? What is their solenoid length?
>>>
>>>Without these details, there is nothing said that is significant.
>>>
>>>73's
>>>Richard Clark, KB7QHC
>
>
>

1550. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 20:02:24 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <uhjhv15u1t68ov6ftk1smorruedois9kki@4ax.com>
Source record: 64261

The machine that has the problem is an XP Pro machine.
The network site works ok on my XP Home laptop, I have not tried to
run the downloaded setup on it yet.

On Sun, 19 Feb 2006 18:10:47 GMT, "Smitty" <newsgroup@swronline.com>
wrote:

>
>"John Ferrell" <johnferrell@sprintmail.com> wrote in message
>news:n3hfv1l2thdrndmhbop3rn2od8u9gqvq47@4ax.com...
>> In my quest to understand Smith Charts better I ran across a very
>> interesting site at Agilent
>> http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
>> Unfortunately, it would not work since I did not have Java on my
>> machine. A little Google time later, I located the necessary free
>> download (after reading of legal maneuvers) and installed it. Then the
>> link worked fine. Nice site, very helpful.
>>
>> Since they offer a free download I thought it best to capture my own
>> copy of this for the future. After I download & unzip it, it does not
>> want to function from my machine. I would rather spend the computer
>> time with antennas rather than trying to figure out this computer
>> puzzle. Anyone have a SIMPLE solution?
>> TIA,
>> John Ferrell W8CCW
>
>
>Works fine on my WinXP (SP2) machine and IE6.
>-Smitty kb3gun
>
John Ferrell W8CCW

1551. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 21:33:42 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <vplhv1p9idjts8v43qgcnf5hgln1kohs2v@4ax.com>
Source record: 64262

On Sun, 19 Feb 2006 12:52:26 -0500, John Popelish <jpopelish@rica.net>
wrote:

>Boonton originally sold Q standard coils (inductors with known Q) to
>be used to check the accuracy of the Q meters. I don't know how those
>coils calibration got back to basic measurements traced to the Bureau
>of standards.
>

Hi John,

And for the sake of trolling, Reggie claims he doesn't either.

Gads this is so simple as to defy the angst that surrounds this. Any good Impedance Bridge which reports R and X separately will give you the means to measure the Q (or D) of these standards. All this folderol of the "Q quality of the meter" is so much hokum distracting from a simple determination.

Balance the bridge and you will have the resistance that so impacts the Q. Balance the bridge and you will have the reactance that establishes the Q in relation to the resistive loss. And what does the meter have to do with Q? The bridge is adjusted for a zero reading! What accuracy statement can be said about reading zero when you return the needle to the position it was in when the unit was stone cold? THIS is how you qualify the standards Boonton offers. You then qualify your Bridge against separable quantities of X and R. For sure, this may relegate us to a tedious cascade of "how do you know what value those are really?" It is this kind of whining that leads to warning statements being forced into curriculums by those who want to teach Untelligent Design.

Reggie has managed to turn the discussion of Q into a mystical, unknown quantity impossible to determine by his simply ignoring first principles. You measure the Q of the unknown two ways and compare. By the Bridge and by the Boonton. I dare say no more than 20% accumulated error will occur with NONE of it attributed to the "Q quality of the meter" - whatever that is.

So, let's compare. You can have a determination within 20% of actual, and continue to design with confidence. OR You can mumble about the abstract impossibility of ever getting it abso-*&!#ing-lutely right and find yourself in analysis paralysis.

I have, of course, steeply discounted the accuracy of the Boonton to include all RSS accumulation of errors in the instrument's calibration. The manufacturer warrants the device to 5%.

Now, if you strip away all the numbers, you can re-achieve the distinction of the Qualitative statement that got us here. Lord Kelvinator would point out that that and $5 will buy you an insolated cup of Latï¿½.

73's
Richard Clark, KB7QHC

1552. New program OPANGLE3

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 21:42:43 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtaooj$8r6$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64263

NOW AVAILABLE ** New Program "OPANGLE3.exe"

Choose and set plate current operating angle for Class-B and Class-C
RF power amplifiers.

Input data includes control-grid plate-current cut-off volts, DC
negative grid bias, and peak grid drive volts.

Advice on how to use Tube Operating Characteristic Curves is included.
For interest the plate current harmonic content is computed up to the
21st harmonic.

For given DC plate supply volts and peak plate signal volts, the DC
power input, tuned load resistance, RF power output, plate dissipation
and efficiency are computed.

This is a repeat of program Op_Angle (now withdrawn) with the addition
of an analysis of conditions in the plate circuit.

Program size = 50 kilo-bytes.
Download OPANGLE3 from website below.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

1553. Re: Coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 22:14:51 UTC
From: foo <e@b.net>
Message-ID: <v56Kf.32511$Jd.1259@newssvr25.news.prodigy.net>
Source record: 64264

I've also used the BuryFlex for years. It's great stuff.
Emil
W9NM

"Michael Melland" <mmelland@centurytel.net> wrote in message
news:IKidnQjGwKILIGXeRVn-pQ@centurytel.net...
> Hi Arlon,
>
> I'd take a look at Davis BuryFlex (9914F) cable. I switched over ten
> years
> ago and but perhaps for hardline would never switch back to RG213 or RG8
> cable.
>
> http://www.davisrf.com/ham1/coax.htm#buryflex
>
>
> Mike, W9WIS
>
>

1554. 2m/440 antenna Q's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-19 23:28:00 UTC
From: Bill Berris <wjberris@NOSPAMsbcglobal.net>
Message-ID: <4a7Kf.49300$dW3.14954@newssvr21.news.prodigy.com>
Source record: 64265

Hi there!
I am new to the group here, and have a couple of basic questions that I can hopefully get some help with...

I have recently decided to start becoming active on the air (VHF/UHF) again when I found my HT as my wife and I were moving into our new house.

I am pretty much restricted to the HT for a bit, and want to come up with a better antenna solution. A buddy gave me a mobile 2m/440 antenna and mag mount base that he used to use with his Kenwood TM-V7A.

Question 1 -- The coax coming off of the mag mount connected directly to the antenna feed line input on the mobile radio. What kind of connection is this? I need to get a cable that will transition from the antenna feed-line to the BNC connector on the HT. I would need to get this on a length of coax (or just the connections and make my own cable) so that it will reach the garage. Where could I find the cable and/or connectors?

Question 2 -- I was thinking of mounting the mag mount up on one of the rain gutters that is only about 8 feet off the ground... would the modest gain from the antenna along with the 8' mounting provive a significant improvement over a rubber duckie? Or, should I build a 2m J-Pole?

Thanks a bunch for any information you can help me out with -- I am looking forward to getting my feet wet again so that I can convince my wife that I need more radio equipment... :-)

73,

--
Bill Berris, KF6CNP
Salida, CA

1555. Re: 2m/440 antenna Q's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 02:20:18 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <2H9Kf.144$vd2.11@fed1read04>
Source record: 64266

"Bill Berris" <wjberris@NOSPAMsbcglobal.net> wrote in message
news:4a7Kf.49300$dW3.14954@newssvr21.news.prodigy.com...
> Hi there!
> I am new to the group here, and have a couple of basic questions that I
can
> hopefully get some help with...
>
> I have recently decided to start becoming active on the air (VHF/UHF)
again
> when I found my HT as my wife and I were moving into our new house.
>
> I am pretty much restricted to the HT for a bit, and want to come up with
a
> better antenna solution. A buddy gave me a mobile 2m/440 antenna and mag
> mount base that he used to use with his Kenwood TM-V7A.
>
> Question 1 -- The coax coming off of the mag mount connected directly to
the
> antenna feed line input on the mobile radio. What kind of connection is
> this?

The connector from the feed line is most likely a PL-259 UHF plug connector,
since it's intended to connect to the (usual) SO-239 socket connector on a
mobile.
(No guarantees, 'cause I don't have that Kenwood.)

> I need to get a cable that will transition from the antenna
> feed-line to the BNC connector on the HT. I would need to get this on a
> length of coax (or just the connections and make my own cable) so that it
> will reach the garage. Where could I find the cable and/or connectors?

Check http://www.universal-radio.com/catalog/parts/so2adapt.html , one of
many, many
sources of connectors and adapters. You want a UHF Female/BNC Male adapter
if you
connect the existing antenna to your BNC connector on the HT.
>
> Question 2 -- I was thinking of mounting the mag mount up on one of the
rain
> gutters that is only about 8 feet off the ground... would the modest
gain
> from the antenna along with the 8' mounting provive a significant
> improvement over a rubber duckie?

Nearly anything is better than the rubber duck. They are a compromise in every regard except size. I don't feel totally warm and fuzzy about the rain
gutter thing, however. I think the needed capacitive coupling of the mag mount to its ground plane (the rain gutter, in this case) may not be adequate. Can you think of something slightly bigger ... and FLAT ... under that magmount? (I once used a steel TV tray and it worked fine.)

> Or, should I build a 2m J-Pole?

J-poles are great. I have built about two dozen J-poles, some for sale, some for
giveaway, some for our local RACES station and three I have in service here at home. (A 6M J-pole is 13 feet tall and I have built three of them, all from copper
water pipe.)

A 2M J-pole presents a satisfactory match at 440, so I consider it a true dual-band
antenna but its radiation pattern on 440 is mostly NOT toward the horizon, which
means somewhat reduced range on 440 compared to the range with a separate, dedicated 440 antenna.

John, KD6VKW
Chula Vista CA

1556. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 02:38:17 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1140403097.757516.62600@f14g2000cwb.googlegroups.com>
Source record: 64267

Thanks to all you guys for enlightening me. I did an experiment
- I tuned the dipper to 146.520 (not easy to get it right there) and
took my HT out for a walk. I could hear the carrier out to about
400 yards! I'm in a wire mesh/stucco/aluminum siding structure
in the city so that kind of output from an instrument is surprising.

Imagine what it would have done if I inductively coupled to my GP-6
at 25' ? lol! Next I'll try it on HF with my K2....

Ken KG0WX

1557. Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 03:07:03 UTC
From: diannamelrose@gmail.com
Message-ID: <1140404823.199601.294020@g43g2000cwa.googlegroups.com>
Source record: 64268

The person posting here as "dot" with an ISP at sympatico.ca is a truly viscious Usenet kook who is currently harassing 3 other newsgroups.

This man's name (it's not a woman) is Lyle Blake and he recently claimed on another newsgroup that he had a bamk of lawyers ready to sue the Amatreur Radio society in Canada because they would not grant him a HAM license test (hint: he's on a psych disibility and can not afford lawyers)

Lyle has appeared in several other newsgroups in the past (although he specializes in trolling transgendered ones) such as the pascal and Delphi programmers newsgroup.. He strives to create (short term) havoc on newsgroups by making overly nonsensical claims and causing flame wars.

He initially presents as "supportive" to new group members which is used as a ruse to eventually engage people - usually transgendered people - in flame
wars.

In a short while you may notice a rash of odd postings regarding black people (he uses the "N" word) and anal related postings - those are Lyle's trademarks.

Lyle specializes in harrassing people in transgendered newsgroups. He is unemployed,lives off a psychiatric disibility welfare check and spends
all his time (24x7) on Usenet.

He has claimed to be everything from a TS to a TG to what he calls a "male-woman" and now claims to be an androgyne. Basicaly he is a certifiable idiot.

Here he asks a white supremacy group to troll a Usenet groups:

http://groups-beta.google.com/group/alt.support.crossdressing/msg/90a...

More info about him can be found in this FAQ - read it and decide for yourself about him:

http://groups-beta.google.com/group/alt.fashion.crossdressing/msg/9d1...

And this is what the little creep looks like:
http://www.geocities.com/loonylarry2003/

1558. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 03:14:26 UTC
From: diannamelrose@gmail.com
Message-ID: <1140405266.783199.146050@g47g2000cwa.googlegroups.com>
Source record: 64269

Links fixed - sorry

Here is an example of the things he does (ie. asking a white
supremacy group to troll the transgendered groups):

http://groups-beta.google.com/group/alt.support.crossdressing/msg/90a062cef46a3bca

More info about him can be found in this FAQ - read it and decide for
yourself about him:

http://groups-beta.google.com/group/alt.fashion.crossdressing/msg/9d126cf43e96d908

And this is what the little creep looks like:
http://www.geocities.com/loonylarry2003/

1559. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 03:20:01 UTC
From: Frank's Basement 2 <francis@carolyns-creations.com>
Message-ID: <BzaKf.5666$_62.1492@edtnps90>
Source record: 64270

Hi Dan, thanks for the interesting info. You did not specify dimensions, but from your comments it appears you are using a vertical about 23 ft high. Such a monopole would have a 3.5 ohm input impedance when placed above a perfectly conducting ground, and gain about +4.5 dBi. Adding a center loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi. Base loading provides an input impedance of 5.5 ohms with almost the same gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above an average ground, the input impedance increases to 40 ohms, and gain -6.3 dBi.

Adding lumped element loading coils, (75 uH, Q = 400) in each radial (antenna base end) drops the input impedance to 37 ohms, and gain -6.4 dBi. Don't know why this does not agree with Reg's program. Probably I made some fundamental error with the NEC model. Included the code below, so you may see an error I missed.

73,

Frank

```
CM 75 m Vertical 23 ft high
CE
GW 1 64 0 0 23 0 0 0.25 0.0026706
GW 2 12 0 0 0.25 6 0 0.25 0.0026706
GM 1 9 0 0 36 0 0 0 002.002
GS 0 0 .3048
GE 1
GN 2 0 0 0 13.0000 0.0050
EX 0 1 64 0 1.00000 0.00000
LD 5 1 1 184 5.8001E7
LD 4 1 33 33 4 1600
LD 4 2 1 1 4 1750
LD 4 3 1 1 4 1750
LD 4 4 1 1 4 1750
LD 4 5 1 1 4 1750
LD 4 6 1 1 4 1750
LD 4 7 1 1 4 1750
LD 4 8 1 1 4 1750
LD 4 9 1 1 4 1750
LD 4 10 1 1 4 1750
LD 4 11 1 1 4 1750
FR 0 11 0 0 3.5 0.05
RP 0 181 1 1000 -90 0 1.00000 1.00000
EN
```

> Frank,
>

> Good morning. Let me start at the beginning. I have a loaded vertical on
75
> meters. The combination of the antenna and ground measure about 40 Ohms at
the
> antenna. The models all show such an antenna over a perfect ground should
have a
> radiation resistance of between 3 and 4 Ohms. That says the antenna system
is
> less the 10% efficient.
>
> This then is a journey to reduce ground resistance. Attempts to add
radials and
> wire mesh to the ground have had very little if no effect. This leads to
Reg's
> c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to
a 2
> meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
range.
>
> Together this should result is a 8 Ohm system. The ratio can be directly
> inferred as an performance improvement of 5 to 1 or 7 db. This is worth
some
> effort.
>
> To answer your question the first step will be one coil and one radial.
The
> objective is the get the antenna system close to 10 Ohms. From there I
will
> experiment with adding radials and coils. I am not sure what to expect.
>
> Thanks - Dan
>
>
>
>
>
> Frank wrote:
> > Not sure I understand what is going on Dan. Are you planning on loading
> > each radial element?
> >
> > Frank
> >
> >
> > "dansawyeror" <dansawyeror@comcast.net> wrote in message
> > news:43F79966.3070004@comcast.net...
> >
> >>These results were from Reg's c_poise program. The band is 75 meters and
> >>the coils were about 70 uH. The coils were a relatively large diameter,
on
> >>the order of a meter. The wire lengths were about 20 meters. By varying

> >>the length the coil, the coil wire may be varies from 1mm to 12mm.
> >>
> >>Richard Clark wrote:
> >>
> >>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
> >>><dansawyeror@comcast.net> wrote:
> >>>
> >>>
> >>>
> >>>>The devil is in the details. Modeling shows large coils with 1 mm wire
> >>>>have a Q in the range of a few hundred. On the other hand a coil with
12
> >>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
Ohms
> >>>>while the 12 mm coil is on the order of 1 Ohm.
> >>>>
> >>>>Given these model results it says there is a significant difference
> >>>>between 1 mm and 12 mm coils.
> >>>
> >>>
> >>>Hi Dan,
> >>>
> >>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
> >>>resistor? What is the LENGTH
> >>>of wire in this 1 Ohm resistor? How many turns are in these "large
> >>>coils?" What is their diameter? What is their solenoid length?
> >>>
> >>>Without these details, there is nothing said that is significant.
> >>>
> >>>73's
> >>>Richard Clark, KB7QHC
> >>
> >>
> >>

1560. Re: Coax

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 03:59:37 UTC
From: Charlie <charlie@usc.edu>
Message-ID: <11viflulbf2igf1@news.supernews.com>
Source record: 64271

Hard to beat Davis BuryFlex which besides being very low loss (nearly the same as 9913 within a couple tenths of a db) is direct bury and has a 20 year service life.
Got nearly 500ft of it here on all my antennas from HF thru VHF
--

Charlie-AD5TH
www.deepsouthnet.net

"foo" <e@b.net> wrote in message
news:v56Kf.32511$Jd.1259@newssvr25.news.prodigy.net...
> I've also used the BuryFlex for years. It's great stuff.
> Emil
> W9NM
>
> "Michael Melland" <mmelland@centurytel.net> wrote in message
> news:IKidnQjGwKILIGXeRVn-pQ@centurytel.net...
>> Hi Arlon,
>>
>> I'd take a look at Davis BuryFlex (9914F) cable. I switched over ten
>> years
>> ago and but perhaps for hardline would never switch back to RG213 or RG8
>> cable.
>>
>> http://www.davisrf.com/ham1/coax.htm#buryflex
>>
>>
>> Mike, W9WIS
>>
>>
>
>

1561. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 04:35:38 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F9471A.4090904@comcast.net>
Source record: 64272

Frank,

Thanks for the model. I did not expect you to model this or I would have been more specific. The antenna is about 14 feet. The coil is about 4 feet from the base.

Now the radials: Did you base the radial from Reg's model? Try 3.97 MHz, 1 meter above ground, 3 meter radials, and a 60mm long by 300 mm dia 66.7 uH loading coil. These grounds have to be tuned as well.

I am using 4nec2 and am getting errors from the GM card. Wasn't there an issue with these being a decimal instead of an integer?

BTW - The simulation on my laptop takes over 5 minutes to run.

Dan

Frank's Basement 2 wrote:
> Hi Dan, thanks for the interesting info. You did not specify dimensions,
> but from your comments it appears you are using a vertical about 23 ft high.
> Such a monopole would have a 3.5 ohm input impedance when placed above a
> perfectly conducting ground, and gain about +4.5 dBi. Adding a center
> loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
> Base loading provides an input impedance of 5.5 ohms with almost the same
> gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above an
> average ground, the input impedance increases to 40 ohms, and gain -6.3 dBi.
>
> Adding lumped element loading coils, (75 uH, Q = 400) in each radial
> (antenna base end) drops the input impedance to 37 ohms, and gain -6.4 dBi.
> Don't know why this does not agree with Reg's program. Probably I made some
> fundamental error with the NEC model. Included the code below, so you may
> see an error I missed.
>
> 73,
>
> Frank
>
> CM 75 m Vertical 23 ft high
> CE
> GW 1 64 0 0 23 0 0 0.25 0.0026706
> GW 2 12 0 0 0.25 6 0 0.25 0.0026706
> GM 1 9 0 0 36 0 0 0 002.002
> GS 0 0 .3048
> GE 1
> GN 2 0 0 0 13.0000 0.0050
> EX 0 1 64 0 1.00000 0.00000

> LD 5 1 1 184 5.8001E7
> LD 4 1 33 33 4 1600
> LD 4 2 1 1 4 1750
> LD 4 3 1 1 4 1750
> LD 4 4 1 1 4 1750
> LD 4 5 1 1 4 1750
> LD 4 6 1 1 4 1750
> LD 4 7 1 1 4 1750
> LD 4 8 1 1 4 1750
> LD 4 9 1 1 4 1750
> LD 4 10 1 1 4 1750
> LD 4 11 1 1 4 1750
> FR 0 11 0 0 3.5 0.05
> RP 0 181 1 1000 -90 0 1.00000 1.00000
> EN
>
>
>
>
>
>>Frank,
>>
>>Good morning. Let me start at the beginning. I have a loaded vertical on
>
> 75
>
>>meters. The combination of the antenna and ground measure about 40 Ohms at
>
> the
>
>>antenna. The models all show such an antenna over a perfect ground should
>
> have a
>
>>radiation resistance of between 3 and 4 Ohms. That says the antenna system
>
> is
>
>>less the 10% efficient.
>>
>>This then is a journey to reduce ground resistance. Attempts to add
>
> radials and
>
>>wire mesh to the ground have had very little if no effect. This leads to
>
> Reg's
>
>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to
>

> a 2
>
>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>
> range.
>
>>Together this should result is a 8 Ohm system. The ratio can be directly
>>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
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> some
>
>>effort.
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>>To answer your question the first step will be one coil and one radial.
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> The
>
>>objective is the get the antenna system close to 10 Ohms. From there I
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> will
>
>>experiment with adding radials and coils. I am not sure what to expect.
>>
>>Thanks - Dan
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>>
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>>
>>
>>Frank wrote:
>>
>>>Not sure I understand what is going on Dan. Are you planning on loading
>>>each radial element?
>>>
>>>Frank
>>>
>>>
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:43F79966.3070004@comcast.net...
>>>
>>>
>>>>These results were from Reg's c_poise program. The band is 75 meters and
>>>>the coils were about 70 uH. The coils were a relatively large diameter,
>
> on
>
>>>>the order of a meter. The wire lengths were about 20 meters. By varying
>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>
>>>>Richard Clark wrote:

>>>>
>>>>
>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>><dansawyeror@comcast.net> wrote:
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>>The devil is in the details. Modeling shows large coils with 1 mm wire
>>>>>>have a Q in the range of a few hundred. On the other hand a coil with
>
> 12
>
>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>
> Ohms
>
>>>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>>>
>>>>>>Given these model results it says there is a significant difference
>>>>>>between 1 mm and 12 mm coils.
>>>>>
>>>>>
>>>>>Hi Dan,
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>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>>>resistor? What is the LENGTH
>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>>>coils?" What is their diameter? What is their solenoid length?
>>>>>
>>>>>Without these details, there is nothing said that is significant.
>>>>>
>>>>>73's
>>>>>Richard Clark, KB7QHC
>>>
>>>
>>>
>
>

1562. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 04:50:19 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <HTbKf.153$vd2.44@fed1read04>
Source record: 64273

<diannamelrose@gmail.com> wrote in message
news:1140404823.199601.294020@g43g2000cwa.googlegroups.com...
> The person posting here as "dot" with an ISP at sympatico.ca is a truly
> viscious Usenet kook who is currently harassing 3 other newsgroups.
>
> This man's name (it's not a woman) is Lyle Blake and he recently
> claimed on another newsgroup that he had a bamk of lawyers ready to sue
> the Amatreur Radio society in Canada because they would not grant him a
> HAM license test (hint: he's on a psych disibility and can not afford
> lawyers)
>
> Lyle has appeared in several other newsgroups in the past (although he
> specializes in trolling transgendered ones) such as the pascal and
> Delphi programmers newsgroup.. He strives to create (short term) havoc
> on newsgroups by making overly nonsensical claims and causing flame
> wars.
>
> He initially presents as "supportive" to new group members which is
> used as a ruse to eventually engage people - usually transgendered
> people - in flame
> wars.
>
> In a short while you may notice a rash of odd postings regarding black
> people (he uses the "N" word) and anal related postings - those are
> Lyle's trademarks.
>
> Lyle specializes in harrassing people in transgendered newsgroups. He
> is unemployed,lives off a psychiatric disibility welfare check and
> spends
> all his time (24x7) on Usenet.
>
> He has claimed to be everything from a TS to a TG to what he calls a
> "male-woman" and now claims to be an androgyne. Basicaly he is a
> certifiable idiot.
>
> Here he asks a white supremacy group to troll a Usenet groups:
>
> http://groups-beta.google.com/group/alt.support.crossdressing/msg/90a...
>
>
> More info about him can be found in this FAQ - read it and decide for
> yourself about him:
>
> http://groups-beta.google.com/group/alt.fashion.crossdressing/msg/9d1...

>
> And this is what the little creep looks like:
> http://www.geocities.com/loonylarry2003/
>

Dot will need to make postings a lot nastier to be considered by most to be "a truly viscious [sic] Usenet kook." HIs post seemed ordinary enough.

However, will watch for incipient flame wars and take kill-file action, as needed.

1563. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 05:14:26 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F95032.1000908@comcast.net>
Source record: 64274

Follow up:

One of the not so apparent results of Reg's program is the relationship of radial length to height. I chose 2 meters because they were only .7 meters high.

I raised your model to 2 meters, that reduced the R to about 20 Ohms. Raising it to 3 meters lowers it to 18 Ohms.

How did you calculate the H of the loading coils? Is that easy to edit? It would seem that these values are closer.

Dan

Frank's Basement 2 wrote:
> Hi Dan, thanks for the interesting info. You did not specify dimensions,
> but from your comments it appears you are using a vertical about 23 ft high.
> Such a monopole would have a 3.5 ohm input impedance when placed above a
> perfectly conducting ground, and gain about +4.5 dBi. Adding a center
> loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
> Base loading provides an input impedance of 5.5 ohms with almost the same
> gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above an
> average ground, the input impedance increases to 40 ohms, and gain -6.3 dBi.
>
> Adding lumped element loading coils, (75 uH, Q = 400) in each radial
> (antenna base end) drops the input impedance to 37 ohms, and gain -6.4 dBi.
> Don't know why this does not agree with Reg's program. Probably I made some
> fundamental error with the NEC model. Included the code below, so you may
> see an error I missed.
>
> 73,
>
> Frank
>
> CM 75 m Vertical 23 ft high
> CE
> GW 1 64 0 0 23 0 0 0.25 0.0026706
> GW 2 12 0 0 0.25 6 0 0.25 0.0026706
> GM 1 9 0 0 36 0 0 0 002.002
> GS 0 0 .3048
> GE 1
> GN 2 0 0 0 13.0000 0.0050
> EX 0 1 64 0 1.00000 0.00000
> LD 5 1 1 184 5.8001E7
> LD 4 1 33 33 4 1600
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> LD 4 4 1 1 4 1750
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> LD 4 9 1 1 4 1750
> LD 4 10 1 1 4 1750
> LD 4 11 1 1 4 1750
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> RP 0 181 1 1000 -90 0 1.00000 1.00000
> EN
>
>
>
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>>Frank,
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>>Good morning. Let me start at the beginning. I have a loaded vertical on
>
> 75
>
>>meters. The combination of the antenna and ground measure about 40 Ohms at
>
> the
>
>>antenna. The models all show such an antenna over a perfect ground should
>
> have a
>
>>radiation resistance of between 3 and 4 Ohms. That says the antenna system
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> is
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>>less the 10% efficient.
>>
>>This then is a journey to reduce ground resistance. Attempts to add
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> radials and
>
>>wire mesh to the ground have had very little if no effect. This leads to
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> Reg's
>
>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to
>
> a 2
>
>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>

> range.
>
>>Together this should result is a 8 Ohm system. The ratio can be directly
>>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
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> some
>
>>effort.
>>
>>To answer your question the first step will be one coil and one radial.
>
> The
>
>>objective is the get the antenna system close to 10 Ohms. From there I
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>>experiment with adding radials and coils. I am not sure what to expect.
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>>Thanks - Dan
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>>
>>
>>Frank wrote:
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>>>Not sure I understand what is going on Dan. Are you planning on loading
>>>each radial element?
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>>>news:43F79966.3070004@comcast.net...
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>>>>These results were from Reg's c_poise program. The band is 75 meters and
>>>>the coils were about 70 uH. The coils were a relatively large diameter,
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>>>>the order of a meter. The wire lengths were about 20 meters. By varying
>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>
>>>>Richard Clark wrote:
>>>>
>>>>
>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>><dansawyeror@comcast.net> wrote:

>>>>>
>>>>>
>>>>>
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>>>>>>The devil is in the details. Modeling shows large coils with 1 mm wire
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>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
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>>>>>Hi Dan,
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>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
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>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
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>>>>>73's
>>>>>Richard Clark, KB7QHC
>>>
>>>
>>>
>
>

1564. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 05:26:31 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43F95307.5020601@comcast.net>
Source record: 64275

I see the length is set to 1.8 meters already. A 2 meter elevation minimum is needed to lower ground effects.

How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance does that translate to? How did you calculate this value? Dan

Frank's Basement 2 wrote:
> Hi Dan, thanks for the interesting info. You did not specify dimensions,
> but from your comments it appears you are using a vertical about 23 ft high.
> Such a monopole would have a 3.5 ohm input impedance when placed above a
> perfectly conducting ground, and gain about +4.5 dBi. Adding a center
> loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
> Base loading provides an input impedance of 5.5 ohms with almost the same
> gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above an
> average ground, the input impedance increases to 40 ohms, and gain -6.3 dBi.
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> Adding lumped element loading coils, (75 uH, Q = 400) in each radial
> (antenna base end) drops the input impedance to 37 ohms, and gain -6.4 dBi.
> Don't know why this does not agree with Reg's program. Probably I made some
> fundamental error with the NEC model. Included the code below, so you may
> see an error I missed.
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> Frank
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> CM 75 m Vertical 23 ft high
> CE
> GW 1 64 0 0 23 0 0 0.25 0.0026706
> GW 2 12 0 0 0.25 6 0 0.25 0.0026706
> GM 1 9 0 0 36 0 0 0 002.002
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> GE 1
> GN 2 0 0 0 13.0000 0.0050
> EX 0 1 64 0 1.00000 0.00000
> LD 5 1 1 184 5.8001E7
> LD 4 1 33 33 4 1600
> LD 4 2 1 1 4 1750
> LD 4 3 1 1 4 1750
> LD 4 4 1 1 4 1750
> LD 4 5 1 1 4 1750
> LD 4 6 1 1 4 1750
> LD 4 7 1 1 4 1750
> LD 4 8 1 1 4 1750
> LD 4 9 1 1 4 1750

> LD 4 10 1 1 4 1750
> LD 4 11 1 1 4 1750
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> Reg's
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>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to
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> a 2
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>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
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> range.
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>>Together this should result is a 8 Ohm system. The ratio can be directly
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>>To answer your question the first step will be one coil and one radial.
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>>Thanks - Dan
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>>Frank wrote:
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>>>Not sure I understand what is going on Dan. Are you planning on loading
>>>each radial element?
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>>>news:43F79966.3070004@comcast.net...
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>>>>the order of a meter. The wire lengths were about 20 meters. By varying
>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
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>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
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>>>>>Without these details, there is nothing said that is significant.
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>>>>>73's
>>>>>Richard Clark, KB7QHC
>>>
>>>
>>>
>
>

1565. Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 07:20:29 UTC
From: samuel.lawrence@optusnet.com.au
Message-ID: <1140420029.713791.128680@g47g2000cwa.googlegroups.com>
Source record: 64176

Hello,

A friend of mine live in outback NSW and wants to install a 5w FM Transmitter on his property to transmit music between buildings - 88 - 108mhz - can anybody suggest an antenna for this purpose - maybe a link to manufacturer/distributor in Australia? Yes we understand that it is most probably illegal but think that signal will not drift off property.

Thanks in advance.

1566. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 08:00:44 UTC
From: David Ryeburn <ryeburn@sfu.caz>
Message-ID: <ryeburn-CCD551.00004420022006@morgoth.sfu.ca>
Source record: 64177

In article <1pifv1l0gc9ji32ipa3os3gfma0en7nvn5@4ax.com>,
Richard Clark <kb7qhc@comcast.net> wrote:

> On Sun, 19 Feb 2006 01:15:07 GMT, John Ferrell
> <johnferrell@sprintmail.com> wrote:
>
> >In my quest to understand Smith Charts better I ran across a very
> >interesting site at Agilent
> >http://www.educatorscorner.com/index.cgi?CONTENT_ID=2482
> >Unfortunately, it would not work since I did not have Java on my
> >machine. A little Google time later, I located the necessary free
> >download (after reading of legal maneuvers) and installed it. Then the
> >link worked fine. Nice site, very helpful.
> >
> >Since they offer a free download I thought it best to capture my own
> >copy of this for the future. After I download & unzip it, it does not
> >want to function from my machine. I would rather spend the computer
> >time with antennas rather than trying to figure out this computer
> >puzzle. Anyone have a SIMPLE solution?
>
> Hi John,
>
> I unzipped all the contents into a dedicated folder.
>
> I double-clicked the file SChart.html located inside the dedicated
> folder. Works fine for Firefox.
>
> 73's
> Richard Clark, KB7QHC

And it works fine using Camino on my G4 PowerMac. (Camino is rather like Firefox, but it make direct use of Macintosh system calls and thus is much, much faster than Firefox.) I had the thing working about 3 seconds after downloading it. Java is Java is Java and should be completely platform-independent. But if the original poster is using Internet Exploder, that may the be problem. The mozilla.org browsers are safe, they have Java built-in, and anyway he should replace IE with Firefox for his computer's health's sake and not just to make Java work in the browser.

David, ex-W8EZE

--
David Ryeburn
ryeburn@sfu.caz

To send e-mail, use "ca" instead of "caz".

1567. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 13:19:48 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <m8soc3-j2o.ln1@p400bob.personal.cox.net>
Source record: 64179

Hi Sam

Keeping this technical rather than legal!

I think the cheapest/easiest way to do this is mount a quarter wave whip on top of one of the (many?) corrugated iron building roofs.

There are many ways to start this off. I guess that given proximity of resources etc a cut down CB mobile base and whip would be a viable option. I am talking about a fibreglass or stainless steel antenna that initially would be about 9ft to start with.

The length of the whip would be roughly 300/freq/4 but tuning it with an SWR measuring device would be a good thing to do.

Cheers Bob VK2YQA

samuel.lawrence@optusnet.com.au wrote:
>
> Hello,
>
> A friend of mine live in outback NSW and wants to install a 5w FM

1568. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 13:27:29 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <v0gjv1djnjs9hlsklak885q6ltfno8kaei@4ax.com>
Source record: 64178

It also fails to run as a download from the XP Home Laptop (also IE 6).

I need to run the most popular browser so that I can verify the operation of the web sites I maintain and to stay familiar with my client's configurations. I used to keep Netscape available to verify anther browser but have opted for a Linux (USE 10) machine as an alternate lately.

It is unfortunate that Microsoft has elected to shun Java but I won't let that become my problem.

Thanks for all the help, I choose to outflank the Java issue and get back to the Smith Charts!

>And it works fine using Camino on my G4 PowerMac. (Camino is rather like
>Firefox, but it make direct use of Macintosh system calls and thus is
>much, much faster than Firefox.) I had the thing working about 3 seconds
>after downloading it. Java is Java is Java and should be completely
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>Exploder, that may the be problem. The mozilla.org browsers are safe,
>they have Java built-in, and anyway he should replace IE with Firefox
>for his computer's health's sake and not just to make Java work in the
>browser.
>
>David, ex-W8EZE
John Ferrell W8CCW

1569. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 14:52:07 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <rIkKf.10774$n67.8135@edtnps89>
Source record: 64180

Dan,

I find antenna problems very interesting, so do not mind spending time on running models.

The radials were based on your comments in an earlier post about "2 meter radials". You have provided me with a lot of information in subsequent posts, so will use that info to try and construct a more realistic model. I still have a couple of questions though: how many radials are you using, and where do you position the radial loading coils?

You are correct about the "GM" problem, and I forgot it produced an error in 4nec2. The last "ITS" field should be an integer. I have not completely confirmed it with 4nec2, but the ITS field refers to the tag to be replicated -- in this case tag 2. GM generates 9 tags rotated by 36 degrees, and saves a ton of GW cards.

I cannot understand why your simulation takes 5 minutes since there are only 184 segments, and 11 frequencies. I just checked and it takes only 3.9 seconds with my NEC2 program, or 4nec2. Anyway my model will take a lot of revision to replicate your actual antenna. May get a chance to look at it later tonight.

73,

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43F9471A.4090904@comcast.net...
> Frank,
>
> Thanks for the model. I did not expect you to model this or I would have
> been more specific. The antenna is about 14 feet. The coil is about 4 feet
> from the base.
>
> Now the radials: Did you base the radial from Reg's model? Try 3.97 MHz, 1
> meter above ground, 3 meter radials, and a 60mm long by 300 mm dia 66.7 uH
> loading coil. These grounds have to be tuned as well.
>
> I am using 4nec2 and am getting errors from the GM card. Wasn't there an
> issue with these being a decimal instead of an integer?
>
> BTW - The simulation on my laptop takes over 5 minutes to run.
>
> Dan
>

> Frank's Basement 2 wrote:
>> Hi Dan, thanks for the interesting info. You did not specify dimensions,
>> but from your comments it appears you are using a vertical about 23 ft
>> high.
>> Such a monopole would have a 3.5 ohm input impedance when placed above a
>> perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>> loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
>> Base loading provides an input impedance of 5.5 ohms with almost the same
>> gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above
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>> average ground, the input impedance increases to 40 ohms, and gain -6.3
>> dBi.
>>
>> Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>> (antenna base end) drops the input impedance to 37 ohms, and gain -6.4
>> dBi.
>> Don't know why this does not agree with Reg's program. Probably I made
>> some
>> fundamental error with the NEC model. Included the code below, so you
>> may
>> see an error I missed.
>>
>> 73,
>>
>> Frank
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>> CM 75 m Vertical 23 ft high
>> CE
>> GW 1 64 0 0 23 0 0 0.25 0.0026706
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>> GM 1 9 0 0 36 0 0 0 002.002
>> GS 0 0 .3048
>> GE 1
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>> EX 0 1 64 0 1.00000 0.00000
>> LD 5 1 1 184 5.8001E7
>> LD 4 1 33 33 4 1600
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>> LD 4 6 1 1 4 1750
>> LD 4 7 1 1 4 1750
>> LD 4 8 1 1 4 1750
>> LD 4 9 1 1 4 1750
>> LD 4 10 1 1 4 1750
>> LD 4 11 1 1 4 1750
>> FR 0 11 0 0 3.5 0.05
>> RP 0 181 1 1000 -90 0 1.00000 1.00000
>> EN

>>
>>
>>
>>
>>
>>>Frank,
>>>
>>>Good morning. Let me start at the beginning. I have a loaded vertical on
>>
>> 75
>>
>>>meters. The combination of the antenna and ground measure about 40 Ohms
>>>at
>>
>> the
>>
>>>antenna. The models all show such an antenna over a perfect ground should
>>
>> have a
>>
>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
>>>system
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>> is
>>
>>>less the 10% efficient.
>>>
>>>This then is a journey to reduce ground resistance. Attempts to add
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>> radials and
>>
>>>wire mesh to the ground have had very little if no effect. This leads to
>>
>> Reg's
>>
>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to
>>
>> a 2
>>
>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>>
>> range.
>>
>>>Together this should result is a 8 Ohm system. The ratio can be directly
>>>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
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>> some
>>
>>>effort.
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>>>To answer your question the first step will be one coil and one radial.
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>> The
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>>>objective is the get the antenna system close to 10 Ohms. From there I
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>> will
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>>>experiment with adding radials and coils. I am not sure what to expect.
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>>>Thanks - Dan
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>>>Frank wrote:
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>>>>Not sure I understand what is going on Dan. Are you planning on loading
>>>>each radial element?
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>>>>Frank
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>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>news:43F79966.3070004@comcast.net...
>>>>
>>>>
>>>>>These results were from Reg's c_poise program. The band is 75 meters
>>>>>and
>>>>>the coils were about 70 uH. The coils were a relatively large diameter,
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>> on
>>
>>>>>the order of a meter. The wire lengths were about 20 meters. By varying
>>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>>
>>>>>Richard Clark wrote:
>>>>>
>>>>>
>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>><dansawyeror@comcast.net> wrote:
>>>>>>
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>>>>>>>The devil is in the details. Modeling shows large coils with 1 mm
>>>>>>>wire
>>>>>>>have a Q in the range of a few hundred. On the other hand a coil with
>>

>> 12
>>
>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
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>>>>>>Hi Dan,
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>>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
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>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>>>>coils?" What is their diameter? What is their solenoid length?
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>>>>>>Without these details, there is nothing said that is significant.
>>>>>>
>>>>>>73's
>>>>>>Richard Clark, KB7QHC
>>>>
>>>>
>>>>
>>

1570. Re: DPDT Coax Switch (sort of)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 16:12:32 UTC
From: F6AOJ <F6AOJ.23jqxa@news.radiobanter.com>
Message-ID: <F6AOJ.23jqxa@news.radiobanter.com>
Source record: 64193

you can use two transfer switchs
+ 2 coax jumpers to conect them,
but most transfer switch are using N connectors
i can do schematic diagram if you need
73 Jeff F6AOJ

William M. Bickley Wrote:
> Does anyone know of a source for a switch which accepts two incoming
> PL-259's (A/B) and spits out either A/B or B/A, depending on switch
> setting.
> The object is to switch the feedpoints of a rhombic antenna from one
> end to
> the other. The two "incoming" lines to the switch are from either end
> of
> the rhombic. The two outgoing (from the switch) go to a dummy load and
> the
> tuner/transceiver.
>
> TIA.
>
> Bill W2ET

--
F6AOJ

1571. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 16:26:57 UTC
From: Frank's Basement 2 <francis@carolyns-creations.com>
Message-ID: <l5mKf.6085$_62.1146@edtnps90>
Source record: 64181

Dan, even more questions: I don't understand the relationship of radial length to height. c_poise seems to allow anything. What is the "H" of a loading coil?

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:43F95032.1000908@comcast.net...
> Follow up:
>
> One of the not so apparent results of Reg's program is the relationship of
> radial length to height. I chose 2 meters because they were only .7 meters high.
>
> I raised your model to 2 meters, that reduced the R to about 20 Ohms. Raising it
> to 3 meters lowers it to 18 Ohms.
>
> How did you calculate the H of the loading coils? Is that easy to edit? It would
> seem that these values are closer.
>
> Dan
>
> Frank's Basement 2 wrote:
> > Hi Dan, thanks for the interesting info. You did not specify dimensions,
> > but from your comments it appears you are using a vertical about 23 ft high.
> > Such a monopole would have a 3.5 ohm input impedance when placed above a
> > perfectly conducting ground, and gain about +4.5 dBi. Adding a center
> > loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
> > Base loading provides an input impedance of 5.5 ohms with almost the same
> > gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above an
> > average ground, the input impedance increases to 40 ohms, and gain -6.3 dBi.
> >
> > Adding lumped element loading coils, (75 uH, Q = 400) in each radial
> > (antenna base end) drops the input impedance to 37 ohms, and gain -6.4 dBi.
> > Don't know why this does not agree with Reg's program. Probably I made some
> > fundamental error with the NEC model. Included the code below, so you

```
may
> > see an error I missed.
> >
> > 73,
> >
> > Frank
> >
> > CM 75 m Vertical 23 ft high
> > CE
> > GW 1 64 0 0 23 0 0 0.25 0.0026706
> > GW 2 12 0 0 0.25 6 0 0.25 0.0026706
> > GM 1 9 0 0 36 0 0 0 002.002
> > GS 0 0 .3048
> > GE 1
> > GN 2 0 0 0 13.0000 0.0050
> > EX 0 1 64 0 1.00000 0.00000
> > LD 5 1 1 184 5.8001E7
> > LD 4 1 33 33 4 1600
> > LD 4 2 1 1 4 1750
> > LD 4 3 1 1 4 1750
> > LD 4 4 1 1 4 1750
> > LD 4 5 1 1 4 1750
> > LD 4 6 1 1 4 1750
> > LD 4 7 1 1 4 1750
> > LD 4 8 1 1 4 1750
> > LD 4 9 1 1 4 1750
> > LD 4 10 1 1 4 1750
> > LD 4 11 1 1 4 1750
> > FR 0 11 0 0 3.5 0.05
> > RP 0 181 1 1000 -90 0 1.00000 1.00000
> > EN
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> >>Frank,
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> >>Good morning. Let me start at the beginning. I have a loaded vertical on
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> >>antenna. The models all show such an antenna over a perfect ground
should
> >
```

> > have a
> >
> >>radiation resistance of between 3 and 4 Ohms. That says the antenna
system
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> >>This then is a journey to reduce ground resistance. Attempts to add
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> > Reg's
> >
> >>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
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> >>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
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> >>Together this should result is a 8 Ohm system. The ratio can be directly
> >>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
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> > some
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> >>effort.
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> >>To answer your question the first step will be one coil and one radial.
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> > The
> >
> >>objective is the get the antenna system close to 10 Ohms. From there I
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> > will
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> >>experiment with adding radials and coils. I am not sure what to expect.
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> >>Thanks - Dan
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> >>
> >>Frank wrote:

> >>
> >>>Not sure I understand what is going on Dan. Are you planning on
loading
> >>>each radial element?
> >>>
> >>>Frank
> >>>
> >>>
> >>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
> >>>news:43F79966.3070004@comcast.net...
> >>>
> >>>
> >>>>These results were from Reg's c_poise program. The band is 75 meters
and
> >>>>the coils were about 70 uH. The coils were a relatively large
diameter,
> >
> > on
> >
> >>>>the order of a meter. The wire lengths were about 20 meters. By
varying
> >>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
> >>>>
> >>>>Richard Clark wrote:
> >>>>
> >>>>
> >>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
> >>>>><dansawyeror@comcast.net> wrote:
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> >>>>>>The devil is in the details. Modeling shows large coils with 1 mm
wire
> >>>>>>have a Q in the range of a few hundred. On the other hand a coil
with
> >
> > 12
> >
> >>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
> >
> > Ohms
> >
> >>>>>>while the 12 mm coil is on the order of 1 Ohm.
> >>>>>>
> >>>>>>Given these model results it says there is a significant difference
> >>>>>>between 1 mm and 12 mm coils.
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> >>>>>
> >>>>>>Hi Dan,

> >>>>>
> >>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
> >>>>>resistor? What is the LENGTH
> >>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
> >>>>>coils?" What is their diameter? What is their solenoid length?
> >>>>>
> >>>>>Without these details, there is nothing said that is significant.
> >>>>>
> >>>>>73's
> >>>>>Richard Clark, KB7QHC
> >>>
> >>>
> >>>
> >
> >

1572. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 16:27:24 UTC
From: stananger <stananger@********.***>
Message-ID: <M5mKf.4986$yw4.797@trnddc05>
Source record: 64182

chuck wrote:

> If the soffits are not metal, they will probably be dry and just about
> anything will do for an insulator/standoff.
>
>When you said "eaves", some of us assumed you meant under the lowest
> edge of the roof. Technically, eaves are the under part of a roof that
> hangs over a wall. So the overhangs at the ends of a gable roof are also
> called eaves. An inverted vee at one of the ends, fed in the center,
> would be something to consider seriously if you have a gable roof. The
> center would be perhaps 18 feet above ground.
>
> On the other hand, if you have a hip roof, then a wire under the eaves
> will be entirely horizontal and approximately eight feet high. Such an
> antenna will exhibit a near-vertical radiation pattern and it will not
> be much of a performer for DX on the HF bands.
>
> Good luck
>
> Chuck
>
>
>
>
> Reg Edwards wrote:
>> Just hang up some wire and see what happens.
>>
>> I make no predictions but you will probably be pleased with results.
>> ----
>> Reg.
>>
>>

Everything is wood

When you said "eaves", some of us assumed you meant under the lowest
> edge of the roof. Technically, eaves are the under part of a roof that
> hangs over a wall. So the overhangs at the ends of a gable roof are also
> called eaves. An inverted vee at one of the ends, fed in the center,
> would be something to consider seriously if you have a gable roof. The
> center would be perhaps 18 feet above ground.

its going to be a loop and the location you describe is accurate

I just wanted to know what the best way to hang this wire from the eave is.

1573. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 16:39:37 UTC
From: Frank's Basement 2 <francis@carolyns-creations.com>
Message-ID: <dhmKf.6088$_62.3050@edtnps90>
Source record: 64183

Dan,

The lumped inductance of 4 +j1750 comes from your previous comment about the inductance range from 60 - 90 uH. I just chose the mid range value of 75 uH at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4 ohms is based on an approximate Q of 400.

Incidentaly I am working at another location this morning. The computer is an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The NEC code here takes 17 seconds to run.

73,

Frank
"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43F95307.5020601@comcast.net...
> I see the length is set to 1.8 meters already. A 2 meter elevation minimum
is
> needed to lower ground effects.
>
> How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance does
that
> translate to? How did you calculate this value? Dan
>
> Frank's Basement 2 wrote:
> > Hi Dan, thanks for the interesting info. You did not specify
dimensions,
> > but from your comments it appears you are using a vertical about 23 ft
high.
> > Such a monopole would have a 3.5 ohm input impedance when placed above a
> > perfectly conducting ground, and gain about +4.5 dBi. Adding a center
> > loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
> > Base loading provides an input impedance of 5.5 ohms with almost the
same
> > gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above
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> > average ground, the input impedance increases to 40 ohms, and gain -6.3
dBi.
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> > Adding lumped element loading coils, (75 uH, Q = 400) in each radial
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> > EX 0 1 64 0 1.00000 0.00000
> > LD 5 1 1 184 5.8001E7
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> > RP 0 181 1 1000 -90 0 1.00000 1.00000
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> >>Frank,
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> >>Good morning. Let me start at the beginning. I have a loaded vertical on
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> > have a
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> >>radiation resistance of between 3 and 4 Ohms. That says the antenna
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> >>>>>73's
> >>>>>Richard Clark, KB7QHC
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> >>>
> >>>
> >
> >

1574. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 18:09:28 UTC
From: johan aeq <pe1aeq@amsat.og>
Message-ID: <f39d1$43fa0691$52ad139c$12121@news.versatel.nl>
Source record: 64184

a simple receiver antenna will do fine.
Just don't use a amplified antenna.
With 5Watts a simple 1:4 ferritebalun in the connectionbox will do the coax
to foldeddipole match too.

<samuel.lawrence@optusnet.com.au> schreef in bericht
news:1140420029.713791.128680@g47g2000cwa.googlegroups.com...
> Hello,
>
> A friend of mine live in outback NSW and wants to install a 5w FM
> Transmitter on his property to transmit music between buildings - 88 -
> 108mhz - can anybody suggest an antenna for this purpose - maybe a link
> to manufacturer/distributor in Australia? Yes we understand that it is
> most probably illegal but think that signal will not drift off
> property.
>
> Thanks in advance.
>

1575. Re: Smith Chart vs JAVA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 18:22:34 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <n12kv1pdrqd53prvn7dnhpa8t527unm37h@4ax.com>
Source record: 64185

FWIW: Both the web site and the dowloaded Java appear to work properly
on Linux SUSE 10 under KDE, Konquer and Firefox.

On Mon, 20 Feb 2006 13:27:29 GMT, John Ferrell
<johnferrell@sprintmail.com> wrote:

>It also fails to run as a download from the XP Home Laptop (also IE
>6).
John Ferrell W8CCW

1576. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 18:50:23 UTC
From: Frank's Basement 2 <francis@carolyns-creations.com>
Message-ID: <PboKf.3138$Nr5.1932@clgrps13>
Source record: 64186

Dan, here is a preliminary run on a 12 ft monopole model structured as
follows:
base at 6 ft, 10 x 6ft radials. All #14 AWG. Ground - perfect, frequency
3.8 MHz.

Zin = 0.968 - j1847.55 ohms;
Efficiency = 87.4 % (structure copper loss);
Gain = 4.15 dBi;
Take-off angle = 0 deg;
Gain at 27 deg elevation (expected TOA with real ground) = +3.09 dBi.

I will try successive modifications to approach a practical model. The code
I used, modified so it should run in 4nec2, is shown below.

73,

Frank

```
CM 75 m Vertical 12 ft high
CM base 6 ft up, 10 X 6 ft radials
CM copper conductivity
CE
GW 1 24 0 0 18 0 0 6 0.0026706
GW 2 12 0 0 6 6 0 6 0.0026706
GM 1 9 0 0 36 0 0 0 2
GS 0 0 .3048
GE 1
GN 1
EX 0 1 24 0 1.00000 0.00000
LD 5 1 1 144 5.8001E7
FR 0 11 0 0 3.5 0.05
RP 0 181 1 1000 -90 0 1.00000 1.00000
EN
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"Frank's Basement 2" <francis@carolyns-creations.com> wrote in message
news:dhmKf.6088$_62.3050@edtnps90...
> Dan,
>
> The lumped inductance of 4 +j1750 comes from your previous comment about
the
> inductance range from 60 - 90 uH. I just chose the mid range value of 75
uH
> at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4 ohms is
> based on an approximate Q of 400.
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> Incidentaly I am working at another location this morning. The computer

is
> an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The NEC
code
> here takes 17 seconds to run.
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> Frank
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> news:43F95307.5020601@comcast.net...
> > I see the length is set to 1.8 meters already. A 2 meter elevation
minimum
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> > needed to lower ground effects.
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> > How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance
does
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> > translate to? How did you calculate this value? Dan
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> high.
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> > > Don't know why this does not agree with Reg's program. Probably I
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> > > GE 1
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> > > LD 4 9 1 1 4 1750
> > > LD 4 10 1 1 4 1750
> > > LD 4 11 1 1 4 1750
> > > FR 0 11 0 0 3.5 0.05
> > > RP 0 181 1 1000 -90 0 1.00000 1.00000
> > > EN
> > >
> > >
> > >
> > >
> > >
> > >>Frank,
> > >>
> > >>Good morning. Let me start at the beginning. I have a loaded vertical
on
> > >
> > > 75
> > >
> > >>meters. The combination of the antenna and ground measure about 40
Ohms
> at
> > >
> > > the
> > >
> > >>antenna. The models all show such an antenna over a perfect ground
> should
> > >
> > > have a
> > >
```

> > >>radiation resistance of between 3 and 4 Ohms. That says the antenna
> system
> > >
> > > is
> > >
> > >>less the 10% efficient.
> > >>
> > >>This then is a journey to reduce ground resistance. Attempts to add
> > >
> > > radials and
> > >
> > >>wire mesh to the ground have had very little if no effect. This leads
to
> > >
> > > Reg's
> > >
> > >>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
> to
> > >
> > > a 2
> > >
> > >>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
> > >
> > > range.
> > >
> > >>Together this should result is a 8 Ohm system. The ratio can be
directly
> > >>inferred as an performance improvement of 5 to 1 or 7 db. This is
worth
> > >
> > > some
> > >
> > >>effort.
> > >>
> > >>To answer your question the first step will be one coil and one
radial.
> > >
> > > The
> > >
> > >>objective is the get the antenna system close to 10 Ohms. From there I
> > >
> > > will
> > >
> > >>experiment with adding radials and coils. I am not sure what to
expect.
> > >>
> > >>Thanks - Dan
> > >>
> > >>
> > >>

> > >>
> > >>
> > >>Frank wrote:
> > >>
> > >>>Not sure I understand what is going on Dan. Are you planning on
> loading
> > >>>each radial element?
> > >>>
> > >>>Frank
> > >>>
> > >>>
> > >>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
> > >>>news:43F79966.3070004@comcast.net...
> > >>>
> > >>>
> > >>>>These results were from Reg's c_poise program. The band is 75 meters
> and
> > >>>>the coils were about 70 uH. The coils were a relatively large
> diameter,
> > >>
> > > on
> > >>
> > >>>>the order of a meter. The wire lengths were about 20 meters. By
> varying
> > >>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
> > >>>>
> > >>>>Richard Clark wrote:
> > >>>>
> > >>>>
> > >>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
> > >>>>><dansawyeror@comcast.net> wrote:
> > >>>>>
> > >>>>>
> > >>>>>
> > >>>>>
> > >>>>>>The devil is in the details. Modeling shows large coils with 1 mm
> wire
> > >>>>>>have a Q in the range of a few hundred. On the other hand a coil
> with
> > >>
> > > 12
> > >>
> > >>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
> > >>
> > > Ohms
> > >>
> > >>>>>>while the 12 mm coil is on the order of 1 Ohm.
> > >>>>>>
> > >>>>>>Given these model results it says there is a significant
difference

> > >>>>>>between 1 mm and 12 mm coils.
> > >>>>>
> > >>>>>
> > >>>>>Hi Dan,
> > >>>>>
> > >>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
> > >>>>>resistor? What is the LENGTH
> > >>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
> > >>>>>coils?" What is their diameter? What is their solenoid length?
> > >>>>>
> > >>>>>Without these details, there is nothing said that is significant.
> > >>>>>
> > >>>>>73's
> > >>>>>Richard Clark, KB7QHC
> > >>>
> > >>>
> > >>>
> > > >
> > > >
>
>

1577. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 19:27:30 UTC
From: stananger <stananger@********.***>
Message-ID: <CKoKf.761$gh4.169@trnddc06>
Source record: 64187

Dot wrote:

> On Mon, 20 Feb 2006 16:27:24 GMT, stananger <stananger@********.***>
> wrote:
>
>>Everything is wood
>>...
>>I just wanted to know what the best way to hang this wire from the eave
>>is.
>
>
> If everything is wood, you could probably just staple the wire under the
> eves of your house.

But staples are metal, which might compress the wire against the wood and damage the wire. Not sure if the staples being metal would effect anything but it I was hoping someone had some experience with this kind of setup.
I was thinking of stapling a black UV resistant cable tie every 10-15 ft and running the wire thru the loop made by the cable tie. Actually a bad idea I think.
Someone did mention the screw in type tv cable standoffs. Thats a possibility but I guess I am looking for someone who has actually done this to see what they had done and what problems they had encountered.
Another poster also mentioned it would be a poor DX antenna, maybe, as my house sits on sloping ground and is post and pier the eaves are over 25' on 1/2 of the house. This could be a decent antenna for maybe 15 & 10 meters.
But in my original post the idea was to be used as a receiving antenna maybe for transmitting on 40 & 75 locally.
One point I do want to make again - the other half wants me to make sure its as eye pleasing as possible, which means it cant be easy to see.
When I first thought about doing this I never realized it actually required as much time to come up with a solution as it has.
Simple project? You and I would have thought so.

1578. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 19:49:37 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <h3jpc3-0no.ln1@p400bob.personal.cox.net>
Source record: 64189

Dunno if I'd go the ferrite path. If you dont know the material it may
just end up saturating and being radiated as heat! I'd suggest a
frequency dependent match like a 4:1 coaxial balun if you want to use a
folded dipole. Thats just a 1/2 wave length of coax at the right freq
allowing for velocity factor. Lots of places to search what that looks
like on the web. try;

http://n-lemma.com/calcs/dipole/balun.htm

You could use a ferrite balun especially if you are looking for
broadband use. Take care with material selection and wire turns though.

Cheers Bob

johan aeq wrote:
> a simple receiver antenna will do fine.
> Just don't use a amplified antenna.
> With 5Watts a simple 1:4 ferritebalun in the connectionbox will do the coax
> to foldeddipole match too.

1579. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 19:54:37 UTC
From: DaveM <masondg4499@comcast99.net>
Message-ID: <guqdnTDuWcPjg2feRVn-tw@comcast.com>
Source record: 64188

"johan aeq" <pe1aeq@amsat.og> wrote in message
news:f39d1$43fa0691$52ad139c$12121@news.versatel.nl...
>a simple receiver antenna will do fine.
> Just don't use a amplified antenna.
> With 5Watts a simple 1:4 ferritebalun in the connectionbox will do the
> coax
> to foldeddipole match too.
>
> <samuel.lawrence@optusnet.com.au> schreef in bericht
> news:1140420029.713791.128680@g47g2000cwa.googlegroups.com...
>> Hello,
>>
>> A friend of mine live in outback NSW and wants to install a 5w FM
>> Transmitter on his property to transmit music between buildings - 88 -
>> 108mhz - can anybody suggest an antenna for this purpose - maybe a link
>> to manufacturer/distributor in Australia? Yes we understand that it is
>> most probably illegal but think that signal will not drift off
>> property.
>>
>> Thanks in advance.
>>

http://www.ramseyelectronics.com/cgi-bin/commerce.exe?preadd=action&key=TM100
is a pretty good antenna for low power transmitters. It's pretty simple to
build too. If you're any good at interpreting the assembly instructions,
you can probably build one from scratch. The instructions are at
http://www.ramseyelectronics.com/downloads/manuals/TM100.pdf. Mostly made
of common PVC piping and hardware, and the innards from a 300-75 ohm TV
transformer, and a ferrite core.

--
Dave M
MasonDG44 at comcast dot net (Just substitute the appropriate characters in
the address)

Never take a laxative and a sleeping pill at the same time!!

1580. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 20:06:44 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FA2154.1060305@comcast.net>
Source record: 64190

Frank,

Good morning. I had a few minutes and created the following model. It is shortened and the number of segments in the vertical is increased. I also set the inductors to 3 Ohms. (That may be optimistic for the antenna, Reg's program predicts 2 Ohms is achievable for larger coils on the radials.) (Sorry for the long numbers.) This shows a resonance at 3.9 MHz and 9.9 Ohms.

4nec2 did not like the GM card, I did not remove it.

Dan

```
CM 75 m Vertical 16 ft high
CE
GW 1 11 0 0 7.5342 0 0 2.6 8.13999e-4
GW 2 12 0 0 2.6 1.8288 0 2.6 8.13999e-4
GW 3 12 0 0 2.6 1.47953028 1.07494167
2.6 8.13999e-4
GW 4 12 0 0 2.6 0.56513028 1.73929216
2.6 8.13999e-4
GW 5 12 0 0 2.6 -0.5651303 1.73929216
2.6 8.13999e-4
GW 6 12 0 0 2.6 -1.4795303 1.07494167
2.6 8.13999e-4
GW 7 12 0 0 2.6 -1.8288 2.2396e-16 2.6
8.13999e-4
GW 8 12 0 0 2.6 -1.4795303 -1.0749417
2.6 8.13999e-4
GW 9 12 0 0 2.6 -0.5651303 -1.7392922
2.6 8.13999e-4
GW 10 12 0 0 2.6 0.56513028 -1.7392922
2.6 8.13999e-4
GW 11 12 0 0 2.6 1.47953028 -1.0749417
2.6 8.13999e-4
GE 0
LD 5 1 0 0 58001000 0
LD 4 1 7 7 3 2100
LD 4 2 1 1 3 2000
LD 4 3 1 1 3 2000
LD 4 4 1 1 3 2000
LD 4 5 1 1 3 2000
LD 4 6 1 1 3 2000
LD 4 7 1 1 3 2000
LD 4 8 1 1 3 2000
LD 4 9 1 1 3 2000
```

```
LD 4 10 1 1 3 2000
LD 4 11 1 1 3 2000
EX 0 1 11 0 1 0
GN 2 0 0 0 13 5.e-3
FR 0 1 0 0 3.5 0
EN
```

Frank wrote:
> Dan,
>
> I find antenna problems very interesting, so do not mind spending time on
> running models.
>
> The radials were based on your comments in an earlier post about "2 meter
> radials". You have provided me with a lot of information in subsequent
> posts, so will use that info to try and construct a more realistic model. I
> still have a couple of questions though: how many radials are you using, and
> where do you position the radial loading coils?
>
> You are correct about the "GM" problem, and I forgot it produced an error in
> 4nec2. The last "ITS" field should be an integer. I have not completely
> confirmed it with 4nec2, but the ITS field refers to the tag to be
> replicated -- in this case tag 2. GM generates 9 tags rotated by 36
> degrees, and saves a ton of GW cards.
>
> I cannot understand why your simulation takes 5 minutes since there are only
> 184 segments, and 11 frequencies. I just checked and it takes only 3.9
> seconds with my NEC2 program, or 4nec2. Anyway my model will take a lot of
> revision to replicate your actual antenna. May get a chance to look at it
> later tonight.
>
> 73,
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43F9471A.4090904@comcast.net...
>
>>Frank,
>>
>>Thanks for the model. I did not expect you to model this or I would have
>>been more specific. The antenna is about 14 feet. The coil is about 4 feet
>>from the base.
>>
>>Now the radials: Did you base the radial from Reg's model? Try 3.97 MHz, 1
>>meter above ground, 3 meter radials, and a 60mm long by 300 mm dia 66.7 uH
>>loading coil. These grounds have to be tuned as well.
>>
>>I am using 4nec2 and am getting errors from the GM card. Wasn't there an

>>issue with these being a decimal instead of an integer?
>>
>>BTW - The simulation on my laptop takes over 5 minutes to run.
>>
>>Dan
>>
>>Frank's Basement 2 wrote:
>>
>>>Hi Dan, thanks for the interesting info. You did not specify dimensions,
>>>but from your comments it appears you are using a vertical about 23 ft
>>>high.
>>>Such a monopole would have a 3.5 ohm input impedance when placed above a
>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
>>>Base loading provides an input impedance of 5.5 ohms with almost the same
>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above
>>>an
>>>average ground, the input impedance increases to 40 ohms, and gain -6.3
>>>dBi.
>>>
>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>>>(antenna base end) drops the input impedance to 37 ohms, and gain -6.4
>>>dBi.
>>>Don't know why this does not agree with Reg's program. Probably I made
>>>some
>>>fundamental error with the NEC model. Included the code below, so you
>>>may
>>>see an error I missed.
>>>
>>>73,
>>>
>>>Frank
>>>
>>>CM 75 m Vertical 23 ft high
>>>CE
>>>GW 1 64 0 0 23 0 0 0.25 0.0026706
>>>GW 2 12 0 0 0.25 6 0 0.25 0.0026706
>>>GM 1 9 0 0 36 0 0 0 002.002
>>>GS 0 0 .3048
>>>GE 1
>>>GN 2 0 0 0 13.0000 0.0050
>>>EX 0 1 64 0 1.00000 0.00000
>>>LD 5 1 1 184 5.8001E7
>>>LD 4 1 33 33 4 1600
>>>LD 4 2 1 1 4 1750
>>>LD 4 3 1 1 4 1750
>>>LD 4 4 1 1 4 1750
>>>LD 4 5 1 1 4 1750
>>>LD 4 6 1 1 4 1750
>>>LD 4 7 1 1 4 1750

>>>LD 4 8 1 1 4 1750
>>>LD 4 9 1 1 4 1750
>>>LD 4 10 1 1 4 1750
>>>LD 4 11 1 1 4 1750
>>>FR 0 11 0 0 3.5 0.05
>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
>>>EN
>>>
>>>
>>>
>>>
>>>
>>>
>>>>Frank,
>>>>
>>>>Good morning. Let me start at the beginning. I have a loaded vertical on
>>>
>>>75
>>>
>>>
>>>>meters. The combination of the antenna and ground measure about 40 Ohms
>>>>at
>>>
>>>the
>>>
>>>
>>>>antenna. The models all show such an antenna over a perfect ground should
>>>
>>>have a
>>>
>>>
>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
>>>>system
>>>
>>>is
>>>
>>>
>>>>less the 10% efficient.
>>>>
>>>>This then is a journey to reduce ground resistance. Attempts to add
>>>
>>>radials and
>>>
>>>
>>>>wire mesh to the ground have had very little if no effect. This leads to
>>>
>>>Reg's
>>>
>>>
>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned to

>>>
>>>a 2
>>>
>>>
>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>>>
>>>range.
>>>
>>>
>>>>Together this should result is a 8 Ohm system. The ratio can be directly
>>>>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
>>>
>>>some
>>>
>>>
>>>>effort.
>>>>
>>>>To answer your question the first step will be one coil and one radial.
>>>
>>>The
>>>
>>>
>>>>objective is the get the antenna system close to 10 Ohms. From there I
>>>
>>>will
>>>
>>>
>>>>experiment with adding radials and coils. I am not sure what to expect.
>>>>
>>>>Thanks - Dan
>>>>
>>>>
>>>>
>>>>
>>>>
>>>>Frank wrote:
>>>>
>>>>
>>>>>Not sure I understand what is going on Dan. Are you planning on loading
>>>>>each radial element?
>>>>>
>>>>>Frank
>>>>>
>>>>>
>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>>news:43F79966.3070004@comcast.net...
>>>>>
>>>>>
>>>>>
>>>>>>These results were from Reg's c_poise program. The band is 75 meters

>>>>>>and
>>>>>>the coils were about 70 uH. The coils were a relatively large diameter,
>>>
>>>on
>>>
>>>
>>>>>>the order of a meter. The wire lengths were about 20 meters. By varying
>>>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>>>
>>>>>>Richard Clark wrote:
>>>>>>
>>>>>>
>>>>>>
>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>>><dansawyeror@comcast.net> wrote:
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>>The devil is in the details. Modeling shows large coils with 1 mm
>>>>>>>>wire
>>>>>>>>have a Q in the range of a few hundred. On the other hand a coil with
>>>
>>>12
>>>
>>>
>>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>>>
>>>Ohms
>>>
>>>
>>>>>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>>>>>
>>>>>>>>Given these model results it says there is a significant difference
>>>>>>>>between 1 mm and 12 mm coils.
>>>>>>>
>>>>>>>
>>>>>>>Hi Dan,
>>>>>>>
>>>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>>>>>resistor? What is the LENGTH
>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>>>>>coils?" What is their diameter? What is their solenoid length?
>>>>>>>
>>>>>>>Without these details, there is nothing said that is significant.
>>>>>>>
>>>>>>>73's
>>>>>>>Richard Clark, KB7QHC
>>>>>

>>>>>
>>>>>
>

1581. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 20:15:44 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FA2370.6050906@comcast.net>
Source record: 64191

Frank,

I tried the nec below. The result was resonant at 21.9 and about 34 Ohms. I am not competent at reading nec cards yet, however the model editor does not show any coil loads. That could explain the frequency?

Dan

Thanks - Dan

Frank's Basement 2 wrote:
> Dan, here is a preliminary run on a 12 ft monopole model structured as
> follows:
> base at 6 ft, 10 x 6ft radials. All #14 AWG. Ground - perfect, frequency
> 3.8 MHz.
>
> Zin = 0.968 - j1847.55 ohms;
> Efficiency = 87.4 % (structure copper loss);
> Gain = 4.15 dBi;
> Take-off angle = 0 deg;
> Gain at 27 deg elevation (expected TOA with real ground) = +3.09 dBi.
>
> I will try successive modifications to approach a practical model. The code
> I used, modified so it should run in 4nec2, is shown below.
>
> 73,
>
> Frank
>
> CM 75 m Vertical 12 ft high
> CM base 6 ft up, 10 X 6 ft radials
> CM copper conductivity
> CE
> GW 1 24 0 0 18 0 0 6 0.0026706
> GW 2 12 0 0 6 6 0 6 0.0026706
> GM 1 9 0 0 36 0 0 0 2
> GS 0 0 .3048
> GE 1
> GN 1
> EX 0 1 24 0 1.00000 0.00000
> LD 5 1 1 144 5.8001E7
> FR 0 11 0 0 3.5 0.05
> RP 0 181 1 1000 -90 0 1.00000 1.00000
> EN
>

>
> "Frank's Basement 2" <francis@carolyns-creations.com> wrote in message
> news:dhmKf.6088$_62.3050@edtnps90...
>
>>Dan,
>>
>>The lumped inductance of 4 +j1750 comes from your previous comment about
>
> the
>
>>inductance range from 60 - 90 uH. I just chose the mid range value of 75
>
> uH
>
>>at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4 ohms is
>>based on an approximate Q of 400.
>>
>>Incidentaly I am working at another location this morning. The computer
>
> is
>
>>an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The NEC
>
> code
>
>>here takes 17 seconds to run.
>>
>>73,
>>
>>Frank
>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>news:43F95307.5020601@comcast.net...
>>
>>>I see the length is set to 1.8 meters already. A 2 meter elevation
>
> minimum
>
>>is
>>
>>>needed to lower ground effects.
>>>
>>>How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance
>
> does
>
>>that
>>
>>>translate to? How did you calculate this value? Dan
>>>
>>>Frank's Basement 2 wrote:

>>>
>>>>Hi Dan, thanks for the interesting info. You did not specify
>>
>>dimensions,
>>
>>>>but from your comments it appears you are using a vertical about 23 ft
>>
>>high.
>>
>>>>Such a monopole would have a 3.5 ohm input impedance when placed above
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>>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6
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> gain -6.3
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>>>>Reg's
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>>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
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>>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
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>>varying
>>
>>>>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>>>>
>>>>>>>Richard Clark wrote:
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>>>>><dansawyeror@comcast.net> wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>>The devil is in the details. Modeling shows large coils with 1 mm
>>
>>wire
>>
>>>>>>>>>have a Q in the range of a few hundred. On the other hand a coil
>>
>>with
>>
>>>>12
>>>>
>>>>
>>>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>>>>
>>>>Ohms
>>>>
>>>>
>>>>>>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>>>>>>
>>>>>>>>>Given these model results it says there is a significant
>
> difference
>
>>>>>>>>>between 1 mm and 12 mm coils.
>>>>>>>>
>>>>>>>>
>>>>>>>>>Hi Dan,
>>>>>>>>

>>>>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>>>>>>resistor? What is the LENGTH
>>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>>>>>>coils?" What is their diameter? What is their solenoid length?
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>>>>>>>>Without these details, there is nothing said that is significant.
>>>>>>>>
>>>>>>>>73's
>>>>>>>>Richard Clark, KB7QHC
>>>>>>
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>

1582. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 20:19:27 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FA244F.30108@comcast.net>
Source record: 64192

I missed this one. About 96 uH.

Frank's Basement 2 wrote:
> Dan, even more questions: I don't understand the relationship of radial
> length to height. c_poise seems to allow anything. What is the "H" of a
> loading coil?
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43F95032.1000908@comcast.net...
>
>>Follow up:
>>
>>One of the not so apparent results of Reg's program is the relationship of
>>radial length to height. I chose 2 meters because they were only .7 meters
>
> high.
>
>>I raised your model to 2 meters, that reduced the R to about 20 Ohms.
>
> Raising it
>
>>to 3 meters lowers it to 18 Ohms.
>>
>>How did you calculate the H of the loading coils? Is that easy to edit? It
>
> would
>
>>seem that these values are closer.
>>
>>Dan
>>
>>Frank's Basement 2 wrote:
>>
>>>Hi Dan, thanks for the interesting info. You did not specify
>
> dimensions,
>
>>>but from your comments it appears you are using a vertical about 23 ft
>
> high.
>

>>>Such a monopole would have a 3.5 ohm input impedance when placed above a
>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
>>>Base loading provides an input impedance of 5.5 ohms with almost the
>
> same
>
>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above
>
> an
>
>>>average ground, the input impedance increases to 40 ohms, and gain -6.3
>
> dBi.
>
>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>>>(antenna base end) drops the input impedance to 37 ohms, and gain -6.4
>
> dBi.
>
>>>Don't know why this does not agree with Reg's program. Probably I made
>
> some
>
>>>fundamental error with the NEC model. Included the code below, so you
>
> may
>
>>>see an error I missed.
>>>
>>>73,
>>>
>>>Frank
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>>>CM 75 m Vertical 23 ft high
>>>CE
>>>GW 1 64 0 0 23 0 0 0.25 0.0026706
>>>GW 2 12 0 0 0.25 6 0 0.25 0.0026706
>>>GM 1 9 0 0 36 0 0 0 002.002
>>>GS 0 0 .3048
>>>GE 1
>>>GN 2 0 0 0 13.0000 0.0050
>>>EX 0 1 64 0 1.00000 0.00000
>>>LD 5 1 1 184 5.8001E7
>>>LD 4 1 33 33 4 1600
>>>LD 4 2 1 1 4 1750
>>>LD 4 3 1 1 4 1750
>>>LD 4 4 1 1 4 1750
>>>LD 4 5 1 1 4 1750
>>>LD 4 6 1 1 4 1750

>>>LD 4 7 1 1 4 1750
>>>LD 4 8 1 1 4 1750
>>>LD 4 9 1 1 4 1750
>>>LD 4 10 1 1 4 1750
>>>LD 4 11 1 1 4 1750
>>>FR 0 11 0 0 3.5 0.05
>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
>>>EN
>>>
>>>
>>>
>>>
>>>
>>>
>>>>Frank,
>>>>
>>>>Good morning. Let me start at the beginning. I have a loaded vertical on
>>>
>>>75
>>>
>>>
>>>>meters. The combination of the antenna and ground measure about 40 Ohms
>
> at
>
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>>>
>>>
>>>>antenna. The models all show such an antenna over a perfect ground
>
> should
>
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>>>
>>>
>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
>
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>
>>>is
>>>
>>>
>>>>less the 10% efficient.
>>>>
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>>>
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>>>>wire mesh to the ground have had very little if no effect. This leads to

>>>
>>>Reg's
>>>
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>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
>
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>
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>>>
>>>
>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
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>>>range.
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>>>>Together this should result is a 8 Ohm system. The ratio can be directly
>>>>inferred as an performance improvement of 5 to 1 or 7 db. This is worth
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>>>>effort.
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>>>>To answer your question the first step will be one coil and one radial.
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>>>>Thanks - Dan
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>>>>Frank wrote:
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>>>>>Not sure I understand what is going on Dan. Are you planning on
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> loading
>
>>>>>each radial element?

>>>>>
>>>>>Frank
>>>>>
>>>>>
>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>>news:43F79966.3070004@comcast.net...
>>>>>
>>>>>
>>>>>
>>>>>>These results were from Reg's c_poise program. The band is 75 meters
>
> and
>
>>>>>>the coils were about 70 uH. The coils were a relatively large
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> diameter,
>
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>>>>>>the order of a meter. The wire lengths were about 20 meters. By
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>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
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>>>>>>>Without these details, there is nothing said that is significant.
>>>>>>>
>>>>>>>73's
>>>>>>>Richard Clark, KB7QHC
>>>>>
>>>>>
>>>>>
>>>
>
>

1583. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 21:13:23 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <tLSdnejoSJ5urWfenZ2dnUVZ_v6dnZ2d@comcast.com>
Source record: 64194

RE: STAPLES

Electrician Staples are INSULATED.

Look into these: "BRISCON Insulated SN 40".

They are 1 inch long and 1/2 inch wide.

I've used them for years in a WX protected location.

stananger wrote:

> I would like to install an under eave antenna at my house.
> Mostly for listening but maybe some low power transmitting.
> What I need is some input from all the experts here as to what supports
> would work best. Also I dont want it to upset the other half
> too much so it would have to be "pleasing" to the eye or damn near
> invisible. As I dont have any plans or thoughts as to what would work best
> I am open to all serious suggestions and ideas. It will be a loop fed with
> open wire feeders is all I have in mind at this time.
>
> Stan
> AH6JR

1584. Re: 2m/440 antenna Q's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 21:19:20 UTC
From: Bill Berris <wjberris@NOSPAMsbcglobal.net>
Message-ID: <snqKf.23044$_S7.21170@newssvr14.news.prodigy.com>
Source record: 64195

"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:2H9Kf.144$vd2.11@fed1read04...
>
> "Bill Berris" <wjberris@NOSPAMsbcglobal.net> wrote in message

Thanks for the info! I think that a J-Pole is in my future... :-)

--
Bill Berris, KF6CNP
Salida, CA

1585. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 21:31:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9zqKf.59268$PL5.49637@newssvr11.news.prodigy.com>
Source record: 64196

stananger wrote:
> When I first thought about doing this I never realized it actually required
> as much time to come up with a solution as it has.

If you keep thinking and talking about it until you
have a perfect solution, it will never get done. :-)
--
73, Cecil http://www.qsl.net/w5dxp

1586. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 22:01:57 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <p%qKf.9245$jh5.8237@edtnps84>
Source record: 64197

Hi Dan, I tried your program, it runs fine, and I get identical results. I also learned a couple of things from your code: Setting "GE" = 0 implies no ground plane present (I would normally set it to "1"), and my "Nec Vu" function shows the antenna with no ground plane. Running the program, however, returns the correct result with an average ground.

I also ran the program with no radial loading (code below), and the gain increased marginally. It seems loading the radials does not help much.

Frank

```
CM 75 m Vertical 16 ft high
CE
GW 1 11 0 0 7.5342 0 0 2.6 8.13999e-4
GW 2 12 0 0 2.6 1.8288 0 2.6 8.13999e-4
GW 3 12 0 0 2.6 1.47953028 1.07494167 2.6 8.13999e-4
GW 4 12 0 0 2.6 0.56513028 1.73929216 2.6 8.13999e-4
GW 5 12 0 0 2.6 -0.5651303 1.73929216 2.6 8.13999e-4
GW 6 12 0 0 2.6 -1.4795303 1.07494167 2.6 8.13999e-4
GW 7 12 0 0 2.6 -1.8288 2.2396e-16 2.6 8.13999e-4
GW 8 12 0 0 2.6 -1.4795303 -1.0749417 2.6 8.13999e-4
GW 9 12 0 0 2.6 -0.5651303 -1.7392922 2.6 8.13999e-4
GW 10 12 0 0 2.6 0.56513028 -1.7392922 2.6 8.13999e-4
GW 11 12 0 0 2.6 1.47953028 -1.0749417 2.6 8.13999e-4
GE 1
GN 2 0 0 0 13.0000 0.0050
LD 4 1 7 7 3 2100
LD 5 1 1 107 5.8001E7
EX 0 1 11 00 1 0
FR 0 11 0 0 3.5 0.05
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43FA2154.1060305@comcast.net...
> Frank,
>
> Good morning. I had a few minutes and created the following model. It is
> shortened and the number of segments in the vertical is increased. I also
> set the inductors to 3 Ohms. (That may be optimistic for the antenna,
> Reg's program predicts 2 Ohms is achievable for larger coils on the
> radials.) (Sorry for the long numbers.) This shows a resonance at 3.9 MHz
> and 9.9 Ohms.
>
> 4nec2 did not like the GM card, I did not remove it.
>
```

> Dan
>
> CM 75 m Vertical 16 ft high
> CE
> GW 1 11 0 0 7.5342 0 0 2.6
> 8.13999e-4
> GW 2 12 0 0 2.6 1.8288 0 2.6
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> GW 4 12 0 0 2.6 0.56513028 1.73929216
> 2.6 8.13999e-4
> GW 5 12 0 0 2.6 -0.5651303 1.73929216
> 2.6 8.13999e-4
> GW 6 12 0 0 2.6 -1.4795303 1.07494167
> 2.6 8.13999e-4
> GW 7 12 0 0 2.6 -1.8288 2.2396e-16
> 2.6 8.13999e-4
> GW 8 12 0 0 2.6 -1.4795303 -1.0749417
> 2.6 8.13999e-4
> GW 9 12 0 0 2.6 -0.5651303 -1.7392922
> 2.6 8.13999e-4
> GW 10 12 0 0 2.6 0.56513028 -1.7392922
> 2.6 8.13999e-4
> GW 11 12 0 0 2.6 1.47953028 -1.0749417
> 2.6 8.13999e-4
> GE 0
> LD 5 1 0 0 58001000 0
> LD 4 1 7 7 3 2100
> LD 4 2 1 1 3 2000
> LD 4 3 1 1 3 2000
> LD 4 4 1 1 3 2000
> LD 4 5 1 1 3 2000
> LD 4 6 1 1 3 2000
> LD 4 7 1 1 3 2000
> LD 4 8 1 1 3 2000
> LD 4 9 1 1 3 2000
> LD 4 10 1 1 3 2000
> LD 4 11 1 1 3 2000
> EX 0 1 11 0 1 0
> GN 2 0 0 0 13 5.e-3
> FR 0 1 0 0 3.5 0
> EN
>
>
>
> Frank wrote:
>> Dan,
>>
>> I find antenna problems very interesting, so do not mind spending time on

>> running models.
>>
>> The radials were based on your comments in an earlier post about "2 meter
>> radials". You have provided me with a lot of information in subsequent
>> posts, so will use that info to try and construct a more realistic model.
>> I still have a couple of questions though: how many radials are you
>> using, and where do you position the radial loading coils?
>>
>> You are correct about the "GM" problem, and I forgot it produced an error
>> in 4nec2. The last "ITS" field should be an integer. I have not
>> completely confirmed it with 4nec2, but the ITS field refers to the tag
>> to be replicated -- in this case tag 2. GM generates 9 tags rotated by
>> 36 degrees, and saves a ton of GW cards.
>>
>> I cannot understand why your simulation takes 5 minutes since there are
>> only 184 segments, and 11 frequencies. I just checked and it takes only
>> 3.9 seconds with my NEC2 program, or 4nec2. Anyway my model will take a
>> lot of revision to replicate your actual antenna. May get a chance to
>> look at it later tonight.
>>
>> 73,
>>
>> Frank
>>
>>
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:43F9471A.4090904@comcast.net...
>>
>>>Frank,
>>>
>>>Thanks for the model. I did not expect you to model this or I would have
>>>been more specific. The antenna is about 14 feet. The coil is about 4
>>>feet from the base.
>>>
>>>Now the radials: Did you base the radial from Reg's model? Try 3.97 MHz,
>>>1 meter above ground, 3 meter radials, and a 60mm long by 300 mm dia 66.7
>>>uH loading coil. These grounds have to be tuned as well.
>>>
>>>I am using 4nec2 and am getting errors from the GM card. Wasn't there an
>>>issue with these being a decimal instead of an integer?
>>>
>>>BTW - The simulation on my laptop takes over 5 minutes to run.
>>>
>>>Dan
>>>
>>>Frank's Basement 2 wrote:
>>>
>>>>Hi Dan, thanks for the interesting info. You did not specify
>>>>dimensions,
>>>>but from your comments it appears you are using a vertical about 23 ft

>>>>high.
>>>>Such a monopole would have a 3.5 ohm input impedance when placed above a
>>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6 dBi.
>>>>Base loading provides an input impedance of 5.5 ohms with almost the
>>>>same
>>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3" above
>>>>an
>>>>average ground, the input impedance increases to 40 ohms, and gain -6.3
>>>>dBi.
>>>>
>>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>>>>(antenna base end) drops the input impedance to 37 ohms, and gain -6.4
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>>>>Don't know why this does not agree with Reg's program. Probably I made
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>>>>EX 0 1 64 0 1.00000 0.00000
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>>>>
>>>>
>>>>
>>>>
>>>>>Frank,
>>>>>
>>>>>Good morning. Let me start at the beginning. I have a loaded vertical
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>>>>
>>>>75
>>>>
>>>>
>>>>>meters. The combination of the antenna and ground measure about 40 Ohms
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>>>>
>>>>the
>>>>
>>>>
>>>>>antenna. The models all show such an antenna over a perfect ground
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>>>>
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>>>>
>>>>
>>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
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>>>>
>>>>>less the 10% efficient.
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>>>>>to
>>>>
>>>>Reg's
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>>>>
>>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
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>>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms

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>>>>>To answer your question the first step will be one coil and one radial.
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>>>>
>>>>>objective is the get the antenna system close to 10 Ohms. From there I
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>>>>>Thanks - Dan
>>>>>
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>>>>>
>>>>>
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>>>>>Frank wrote:
>>>>>
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>>>>>>Not sure I understand what is going on Dan. Are you planning on
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>>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
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>>>>>>>Richard Clark wrote:
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>>>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
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>>>>12
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>>>>
>>>>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>>>>
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>>>>>>>>>Hi Dan,
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>>>>>>>>
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>>>>>>>>
>>>>>>>>>73's
>>>>>>>>>Richard Clark, KB7QHC
>>>>>>

>>>>>>
>>>>>>
>>

1587. Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 22:35:18 UTC
From: david@drumheller.org
Message-ID: <1140474918.828207.324820@g14g2000cwa.googlegroups.com>
Source record: 64198

I'd like to design and build a new 2-meter Yagi antenna, and would like to construct it using aluminum tubing and rod. Drawn tubing--the stuff with an axial seam--would suffice.

Anyone know of a good source for this stuff in Washington DC or nearby areas in Maryland? I've tried Home Depot and the like, but the stock available in these places is incomplete and expensive.

-Dave, K3WQ

1588. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-20 23:29:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vkk5vrumlac0a@corp.supernews.com>
Source record: 64199

Reg Edwards wrote:
>
> Roy, you seem to have forgotten proximity effect.
>. . .

Forgotten? I just didn't see what relevance it had on the difference in Q between an inductor made from a braided coax shield and one made from solid tubing. And I can't see from your posting anything which adds to that discussion. But maybe I'm missing something?

Roy Lewallen, W7EL

1589. Re: Aux Antenna for Wlakman FM radio?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 00:08:04 UTC
From: SignalFerret <signalferret@verizon.net>
Message-ID: <ERsKf.9754$GQ.5457@trnddc03>
Source record: 64201

I wouldn't over think it too much. Try just a floppy wire 18 inches or so,
and see what noise it picks up? You're bigger problem is those radios
aren't designed to pick up distant stations, so outside of a large metro
area you might not get any reception, or worse a signal that constantly
fades in and out. Try the simplest solution first, then start adding
pieces.

Robert N3LGC

"Ken C" <cprstn54@nospam.att.net> wrote in message
news:sq8ev1ledr52hi0hhsa25v9lhbkav95r57@4ax.com...
> On Fri, 17 Feb 2006 04:27:04 GMT, "SignalFerret"
> <signalferret@verizon.net> wrote:
>
>>The shield on the headphone cable is used as the antenna for such devices.
>>As for matching, how good of a match can a headphone cable be? Inside
>>most
>>radios the connection is a single cap, in the pF range, between the jack
>>and
>>the RF front end.
>
> Hmm. Well, the shield on the shielded stereo cable between the player
> and the helmet sound module might pick up some interference from the
> motorcycle's electrics. What components would you suggest that I
> install on that cable to filter that out? Basically, I would want to
> filter out everything that is not audio frequency (20 Hz - 20 kHz) or
> between 88-108 MHz.
>
> The player headphones have a main cable that is 29" long before
> splitting to each headphobne. This is 1/4 wave for FM BCB. I could,
> as you suggest, splice in a 29" wire at the player end of the cable.
>
> Ken KC2JDY
>

1590. Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 00:08:49 UTC
From: Harbin <harbinjr@adelphia.net>
Message-ID: <sOmdnbJ0OueQx2fenZ2dnUVZ_v6dnZ2d@adelphia.com>
Source record: 64202

Howdy Y'all:

I have a fiberglass roof on my Landcruiser, and I was wondering if I can use a halfwave roof mounted antenna?
For some reason, I think since the halfwave is end loaded, that it will not work on my fiberglass roof, and that
it uses a steel roof as part of the match. Am I wrong here? The only other thing I can think of is some kind of
stainless steel J pole on a mount coming off the back. And what about a dual band that will work on fiberglass?
Anybody work with this problem before?

SeeYaa:) Harbin

1591. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 00:20:01 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <3c19$43fa5cb4$45011502$21298@KNOLOGY.NET>
Source record: 64203

"John Popelish" <jpopelish@rica.net> wrote in message
news:87SdnUlqsvC2MmXenZ2dnUVZ_tudnZ2d@adelphia.com...
> Reg Edwards wrote:
> > John, thanks for describing your detailed and recent interesting
> > experience and your thoughts on the subject.
> >
> > However, once again the question is raised - how does one calibrate a
> > Q meter? Rhetorically, is calibration traceable to National or
> > International Standards?
>
> Q is the ratio of two values (and several different pairs of values
> can be used to arrive at the same end result). For a coil, one ratio
> that produces a value of Q is the peak energy stored during an AC
> cycle to the total energy dissipated during a cycle. If you can
> measure those two quantities, separately, you can calculate Q. But it
> is often much easier to work with a resonant tank and use a capacitor
> that is known to have a much higher Q than the coil being tested, so
> that you can assume that all the losses are in the coil. Then the
> tank circuit Q is the coil Q. This is the bases of the Boonton 160A
> and also the signal generator, voltmeter method I have been using.
>
> > So much depends on the Q quality of the meter itself.
>
> The meter quality has to be higher than the Q of the device being
> measured, of a compensation has to be made for the meter losses. For
> instance, with the signal generator voltmeter method, I have
> calculated the losses in the two 10X probes, to prove to myself that
> the errors they cause are not significant up to the highest Q values I
> measured, this way. I would have had to measure a Q near 1000 before
> they would have altered a significant digit of the measurement. But I
> did convince myself that energy absorption outside the coil in
> surrounding objects is significant, since shifting my position in my
> chair did change the measurement.
>
> > Meter
> > manufacturers are unable to state degrees of accuracy at various
> > frequencies and actual values of Q. Nobody knows what the actual
> > value actually is! Least of all the user!
>
> Boonton originally sold Q standard coils (inductors with known Q) to
> be used to check the accuracy of the Q meters. I don't know how those
> coils calibration got back to basic measurements traced to the Bureau
> of standards.
>

>
> > Fortunately, the exact value of Q of a coil is never required. It is
> > used only to provide coarse estimates of other quantities. And there
> > are usually other means of finding the other quantities. They can be
> > estimated by calculating from values which CAN be measured or
> > estimated.
>
> I agree. Usually, proving that a given device has at least a certain
> Q is enough, or tests made on various devices by the same method can
> show which ones have higher Q than others. This is what I am doing
> with the measurements.
>
> > So Q meters provide support and back up for experimenters who have
> > other means of finding the answers they are looking for. By itself a
> > measured value of Q is inaccurate and of no use. What matters is what
> > can be derived or guessed from it.
>
> Q is a way to measure losses. If losses are important to the
> application, Q is one way to get information that is useful. An
> infrared thermal imager may be another.
>
> > It is merely an intermediate variable in a chain of deductions or
> > calculations. Above Q equal to a few hundreds it is anybody's guess.
> >
> > In some ways it is similar to an SWR measurement on a line which isn't
> > there.
> > ----
> > Reg.
> >
> >

1592. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 00:27:44 UTC
From: amdx <amdx@worldnet.att.net>
Message-ID: <1e5bc$43fa5e83$45011502$21708@KNOLOGY.NET>
Source record: 64204

>
> The meter quality has to be higher than the Q of the device being
> measured, of a compensation has to be made for the meter losses. For
> instance, with the signal generator voltmeter method, I have
> calculated the losses in the two 10X probes, to prove to myself that
> the errors they cause are not significant up to the highest Q values I
> measured, this way. I would have had to measure a Q near 1000 before
> they would have altered a significant digit of the measurement. But I
> did convince myself that energy absorption outside the coil in
> surrounding objects is significant, since shifting my position in my
> chair did change the measurement.
>
> >
It has been a while since I measured the 3db points of a inductor, but I
think the probe did load the coil. I recall putting a 1meg resistor in
series
with the probe to help isolate the probe capacitance from the inductor.
Mike

1593. Re: Accuracy of Q meters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 01:08:35 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <DsmdnV-ddNJ_-2fenZ2dnUVZ_tqdnZ2d@adelphia.com>
Source record: 64205

amdx wrote:
>>The meter quality has to be higher than the Q of the device being
>>measured, of a compensation has to be made for the meter losses. For
>>instance, with the signal generator voltmeter method, I have
>>calculated the losses in the two 10X probes, to prove to myself that
>>the errors they cause are not significant up to the highest Q values I
>>measured, this way. I would have had to measure a Q near 1000 before
>>they would have altered a significant digit of the measurement. But I
>>did convince myself that energy absorption outside the coil in
>>surrounding objects is significant, since shifting my position in my
>>chair did change the measurement.
>>
>>
> It has been a while since I measured the 3db points of a inductor, but I
> think the probe did load the coil. I recall putting a 1meg resistor in
> series
> with the probe to help isolate the probe capacitance from the inductor.

Any Q measurement of a tuned circuit must pull less energy from the tank than the tank consumes each cycle, if the meter's effect can be neglected. The Boonton 160A injects a voltage into the tank with a fraction of an ohm source impedance. And a vacuum tube volt meter measures the resultant voltage across the tank. Both these paths represent a loss, and limit the highest possible Q reading to about 400. But some tank impedance combinations (very high impedance affected by volt meter input impedance, or very low impedance affected by voltage source impedance) may face more severe limits.

I bridge type measurement can be zeroed for its internal losses before the measurement, so is more self compensating. But any equipment I have seen will have trouble accurately measuring extremely high Q tanks, inductors or capacitors.

1594. Re: Under Eave Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 01:16:29 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <o7qkv1l9okpeju827fl8mci78rsfb1dp32@4ax.com>
Source record: 64206

On Mon, 20 Feb 2006 19:27:30 GMT, stananger <stananger@********.***>
wrote:

>Simple project? You and I would have thought so.

Hang it up there, sloppily, just to see if it works. Otherwise, you
may go to a lot of refinement and trouble for naught.

bob
k5qwg

1595. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 01:41:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vkrtkc63fde98@corp.supernews.com>
Source record: 64207

On mine, I mounted a telescoping BC band replacement antenna at the top of the metal body piece just behind the door and collapsed it down to about a quarter wave on 2 meters. Although you could probably fiddle the antenna length to get a fair match, I built a little highpass T network out of an inductor on a small powdered iron core and a couple of trimmer capacitors to do the matching. The pattern is probably pretty skewed, but it's adequate to reach the local repeaters. You could mount a dual band antenna at that same spot with some sort of right angle mount.

A half wave antenna at the top of the roof should work ok, but even with a half wave antenna, there's a small amount of return current that has to go somewhere. If I were willing to punch a hole in the top (which I'm not -- have you seen what a replacement top costs?), I'd do something like put a small ground plane inside the car against the top.

This might be a reasonable application for a through-glass antenna -- through one of the windows, that is, although it might be interesting to see how one would work as a through-the-top antenna if you could rotate it to be vertical. But having spent quite a few hours studying various patents for their design, it looks like some might work much better than others.

Roy Lewallen, W7EL

Harbin wrote:
> Howdy Y'all:
>
> I have a fiberglass roof on my Landcruiser, and I was wondering if I can use a halfwave roof mounted antenna?
> For some reason, I think since the halfwave is end loaded, that it will not work on my fiberglass roof, and that
> it uses a steel roof as part of the match. Am I wrong here? The only other thing I can think of is some kind of
> stainless steel J pole on a mount coming off the back. And what about a dual band that will work on fiberglass?
> Anybody work with this problem before?
>
> SeeYaa:) Harbin
>
>

1596. Re: 2m/440 antenna Q's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 03:32:26 UTC
From: WS4V <ws4v@Xwk4w.com>
Message-ID: <vMOdnetFrvIkFGfeRVn-qQ@adelphia.com>
Source record: 64208

Probably the gutter is made of aluminum if put up in recent years so that won't work. Put a dual band mobile on a 6"X6" sheet of thin steel and make four radials about 16" and bend them down at a 45 degree angle from the corners of the plate. Mount them to the steel plate with small bolts and nuts. Put the whole thing in the corner of your room. Unless you are in metal building the antenna will work about as well as it would outside... and yes it will be light years ahead of a duck.
Ken
remove the X in the address to reply.

"Bill Berris" <wjberris@NOSPAMsbcglobal.net> wrote in message
news:4a7Kf.49300$dW3.14954@newssvr21.news.prodigy.com...
> Hi there!
> I am new to the group here, and have a couple of basic questions that I
> can hopefully get some help with...
>
> I have recently decided to start becoming active on the air (VHF/UHF)
> again when I found my HT as my wife and I were moving into our new house.
>
> I am pretty much restricted to the HT for a bit, and want to come up with
> a better antenna solution. A buddy gave me a mobile 2m/440 antenna and
> mag mount base that he used to use with his Kenwood TM-V7A.
>
> Question 1 -- The coax coming off of the mag mount connected directly to
> the antenna feed line input on the mobile radio. What kind of connection
> is this? I need to get a cable that will transition from the antenna
> feed-line to the BNC connector on the HT. I would need to get this on a
> length of coax (or just the connections and make my own cable) so that it
> will reach the garage. Where could I find the cable and/or connectors?
>
> Question 2 -- I was thinking of mounting the mag mount up on one of the
> rain gutters that is only about 8 feet off the ground... would the
> modest gain from the antenna along with the 8' mounting provive a
> significant improvement over a rubber duckie? Or, should I build a 2m
> J-Pole?
>
> Thanks a bunch for any information you can help me out with -- I am
> looking forward to getting my feet wet again so that I can convince my
> wife that I need more radio equipment... :-)
>
> 73,
>
> --
> Bill Berris, KF6CNP

> Salida, CA
>
>

1597. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 04:35:26 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <iMwKf.9526$jh5.3840@edtnps84>
Source record: 64209

That's correct Dan. I just wanted to systematically build up the antenna, adding a component at a time, to note where the major losses are. This was the first trial with no loading -- except for copper conductivity.

From the other model you sent me it seems that any other attempts are redundant. The major losses are due to ground loss, as expected. Unfortunately this can only be overcome by increasing the length, and number, of radials -- something that is pretty well known. Also inductive loading of the radials does not seem to have any effect, except for marginally decreasing the antenna efficiency.

I have been interested in installing a short monopole for 160m, so am very interested in your results. I have a fairly large lot (visible on "Google Earth), so am not so restricted in radial length.

73,

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43FA2370.6050906@comcast.net...
> Frank,
>
> I tried the nec below. The result was resonant at 21.9 and about 34 Ohms.
> I am not competent at reading nec cards yet, however the model editor does
> not show any coil loads. That could explain the frequency?
>
> Dan
>
> Thanks - Dan
>
> Frank's Basement 2 wrote:
>> Dan, here is a preliminary run on a 12 ft monopole model structured as
>> follows:
>> base at 6 ft, 10 x 6ft radials. All #14 AWG. Ground - perfect,
>> frequency
>> 3.8 MHz.
>>
>> Zin = 0.968 - j1847.55 ohms;
>> Efficiency = 87.4 % (structure copper loss);
>> Gain = 4.15 dBi;
>> Take-off angle = 0 deg;
>> Gain at 27 deg elevation (expected TOA with real ground) = +3.09 dBi.
>>
>> I will try successive modifications to approach a practical model. The
>> code

>> I used, modified so it should run in 4nec2, is shown below.
>>
>> 73,
>>
>> Frank
>>
>> CM 75 m Vertical 12 ft high
>> CM base 6 ft up, 10 X 6 ft radials
>> CM copper conductivity
>> CE
>> GW 1 24 0 0 18 0 0 6 0.0026706
>> GW 2 12 0 0 6 6 0 6 0.0026706
>> GM 1 9 0 0 36 0 0 0 2
>> GS 0 0 .3048
>> GE 1
>> GN 1
>> EX 0 1 24 0 1.00000 0.00000
>> LD 5 1 1 144 5.8001E7
>> FR 0 11 0 0 3.5 0.05
>> RP 0 181 1 1000 -90 0 1.00000 1.00000
>> EN
>>
>>
>> "Frank's Basement 2" <francis@carolyns-creations.com> wrote in message
>> news:dhmKf.6088$_62.3050@edtnps90...
>>
>>>Dan,
>>>
>>>The lumped inductance of 4 +j1750 comes from your previous comment about
>>
>> the
>>
>>>inductance range from 60 - 90 uH. I just chose the mid range value of 75
>>
>> uH
>>
>>>at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4 ohms
>>>is
>>>based on an approximate Q of 400.
>>>
>>>Incidentaly I am working at another location this morning. The computer
>>
>> is
>>
>>>an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The NEC
>>
>> code
>>
>>>here takes 17 seconds to run.
>>>

>>>73,
>>>
>>>Frank
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:43F95307.5020601@comcast.net...
>>>
>>>>I see the length is set to 1.8 meters already. A 2 meter elevation
>>
>> minimum
>>
>>>is
>>>
>>>>needed to lower ground effects.
>>>>
>>>>How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance
>>
>> does
>>
>>>that
>>>
>>>>translate to? How did you calculate this value? Dan
>>>>
>>>>Frank's Basement 2 wrote:
>>>>
>>>>>Hi Dan, thanks for the interesting info. You did not specify
>>>
>>>dimensions,
>>>
>>>>>but from your comments it appears you are using a vertical about 23 ft
>>>
>>>high.
>>>
>>>>>Such a monopole would have a 3.5 ohm input impedance when placed above
>>
>> a
>>
>>>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6
>>
>> dBi.
>>
>>>>>Base loading provides an input impedance of 5.5 ohms with almost the
>>>
>>>same
>>>
>>>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3"
>>
>> above
>>
>>>an

>>>
>>>>>average ground, the input impedance increases to 40 ohms, and
>>
>> gain -6.3
>>
>>>dBi.
>>>
>>>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>>>>>(antenna base end) drops the input impedance to 37 ohms, and gain -6.4
>>>
>>>dBi.
>>>
>>>>>Don't know why this does not agree with Reg's program. Probably I
>>
>> made
>>
>>>some
>>>
>>>>>fundamental error with the NEC model. Included the code below, so you
>>>
>>>may
>>>
>>>>>see an error I missed.
>>>>>
>>>>>73,
>>>>>
>>>>>Frank
>>>>>
>>>>>CM 75 m Vertical 23 ft high
>>>>>CE
>>>>>GW 1 64 0 0 23 0 0 0.25 0.0026706
>>>>>GW 2 12 0 0 0.25 6 0 0.25 0.0026706
>>>>>GM 1 9 0 0 36 0 0 0 002.002
>>>>>GS 0 0 .3048
>>>>>GE 1
>>>>>GN 2 0 0 0 13.0000 0.0050
>>>>>EX 0 1 64 0 1.00000 0.00000
>>>>>LD 5 1 1 184 5.8001E7
>>>>>LD 4 1 33 33 4 1600
>>>>>LD 4 2 1 1 4 1750
>>>>>LD 4 3 1 1 4 1750
>>>>>LD 4 4 1 1 4 1750
>>>>>LD 4 5 1 1 4 1750
>>>>>LD 4 6 1 1 4 1750
>>>>>LD 4 7 1 1 4 1750
>>>>>LD 4 8 1 1 4 1750
>>>>>LD 4 9 1 1 4 1750
>>>>>LD 4 10 1 1 4 1750
>>>>>LD 4 11 1 1 4 1750
>>>>>FR 0 11 0 0 3.5 0.05

>>>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
>>>>>EN
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>>Frank,
>>>>>>
>>>>>>Good morning. Let me start at the beginning. I have a loaded vertical
>>
>> on
>>
>>>>>75
>>>>>
>>>>>
>>>>>>meters. The combination of the antenna and ground measure about 40
>>
>> Ohms
>>
>>>at
>>>
>>>>>the
>>>>>
>>>>>
>>>>>>antenna. The models all show such an antenna over a perfect ground
>>>
>>>should
>>>
>>>>>have a
>>>>>
>>>>>
>>>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
>>>
>>>system
>>>
>>>>>is
>>>>>
>>>>>
>>>>>>less the 10% efficient.
>>>>>>
>>>>>>This then is a journey to reduce ground resistance. Attempts to add
>>>>>
>>>>>radials and
>>>>>
>>>>>
>>>>>>wire mesh to the ground have had very little if no effect. This leads
>>
>> to

>>
>>>>>Reg's
>>>>>
>>>>>
>>>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
>>>
>>>to
>>>
>>>>>a 2
>>>>>
>>>>>
>>>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>>>>>
>>>>>range.
>>>>>
>>>>>
>>>>>>Together this should result is a 8 Ohm system. The ratio can be
>>
>> directly
>>
>>>>>>inferred as an performance improvement of 5 to 1 or 7 db. This is
>>
>> worth
>>
>>>>>>some
>>>>>
>>>>>
>>>>>>effort.
>>>>>>
>>>>>>To answer your question the first step will be one coil and one
>>
>> radial.
>>
>>>>>>The
>>>>>
>>>>>
>>>>>>objective is the get the antenna system close to 10 Ohms. From there I
>>>>>
>>>>>>will
>>>>>
>>>>>
>>>>>>experiment with adding radials and coils. I am not sure what to
>>
>> expect.
>>
>>>>>>Thanks - Dan
>>>>>>
>>>>>>
>>>>>>
>>>>>>

>>>>>>
>>>>>>Frank wrote:
>>>>>>
>>>>>>
>>>>>>>Not sure I understand what is going on Dan. Are you planning on
>>>
>>>loading
>>>
>>>>>>>each radial element?
>>>>>>>
>>>>>>>Frank
>>>>>>>
>>>>>>>
>>>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>>>>news:43F79966.3070004@comcast.net...
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>>These results were from Reg's c_poise program. The band is 75 meters
>>>
>>>and
>>>
>>>>>>>>the coils were about 70 uH. The coils were a relatively large
>>>
>>>diameter,
>>>
>>>>>>on
>>>>>>
>>>>>>
>>>>>>>>the order of a meter. The wire lengths were about 20 meters. By
>>>
>>>varying
>>>
>>>>>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>>>>>
>>>>>>>>Richard Clark wrote:
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>>>>>><dansawyeror@comcast.net> wrote:
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>>The devil is in the details. Modeling shows large coils with 1 mm
>>>
>>>wire
>>>

>>>>>>>>>>have a Q in the range of a few hundred. On the other hand a coil
>>>
>>>with
>>>
>>>>>12
>>>>>
>>>>>
>>>>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>>>>>
>>>>>Ohms
>>>>>
>>>>>
>>>>>>>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>>>>>>>
>>>>>>>>>>Given these model results it says there is a significant
>>
>> difference
>>
>>>>>>>>>>between 1 mm and 12 mm coils.
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>Hi Dan,
>>>>>>>>>
>>>>>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>>>>>>>resistor? What is the LENGTH
>>>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large
>>>>>>>>>coils?" What is their diameter? What is their solenoid length?
>>>>>>>>>
>>>>>>>>>Without these details, there is nothing said that is significant.
>>>>>>>>>
>>>>>>>>>73's
>>>>>>>>>Richard Clark, KB7QHC
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>
>>>
>>

1598. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 04:56:08 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FA9D68.3060807@comcast.net>
Source record: 64210

The effect of the radials is a surprise. I would not expect that short radials would work well at all? The system predicts about 9 Ohms. That is closer to what is expected and over 6 db better then the 50 Ohm reading.

I will try experimenting and let you know.

Thanks - Dan

Frank wrote:
> That's correct Dan. I just wanted to systematically build up the antenna,
> adding a component at a time, to note where the major losses are. This was
> the first trial with no loading -- except for copper conductivity.
>
> From the other model you sent me it seems that any other attempts are
> redundant. The major losses are due to ground loss, as expected.
> Unfortunately this can only be overcome by increasing the length, and
> number, of radials -- something that is pretty well known. Also inductive
> loading of the radials does not seem to have any effect, except for
> marginally decreasing the antenna efficiency.
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> I have been interested in installing a short monopole for 160m, so am very
> interested in your results. I have a fairly large lot (visible on "Google
> Earth), so am not so restricted in radial length.
>
> 73,
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43FA2370.6050906@comcast.net...
>
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>>I tried the nec below. The result was resonant at 21.9 and about 34 Ohms.
>>I am not competent at reading nec cards yet, however the model editor does
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>>
>>Dan
>>
>>Thanks - Dan
>>
>>Frank's Basement 2 wrote:
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>>>Dan, here is a preliminary run on a 12 ft monopole model structured as

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>>>base at 6 ft, 10 x 6ft radials. All #14 AWG. Ground - perfect,
>>>frequency
>>>3.8 MHz.
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>>>I used, modified so it should run in 4nec2, is shown below.
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>>>Frank
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>>>CM 75 m Vertical 12 ft high
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>>>GW 1 24 0 0 18 0 0 6 0.0026706
>>>GW 2 12 0 0 6 6 0 6 0.0026706
>>>GM 1 9 0 0 36 0 0 0 2
>>>GS 0 0 .3048
>>>GE 1
>>>GN 1
>>>EX 0 1 24 0 1.00000 0.00000
>>>LD 5 1 1 144 5.8001E7
>>>FR 0 11 0 0 3.5 0.05
>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
>>>EN
>>>
>>>
>>>"Frank's Basement 2" <francis@carolyns-creations.com> wrote in message
>>>news:dhmKf.6088$_62.3050@edtnps90...
>>>
>>>
>>>>Dan,
>>>>
>>>>The lumped inductance of 4 +j1750 comes from your previous comment about
>>>
>>>the
>>>
>>>
>>>>inductance range from 60 - 90 uH. I just chose the mid range value of 75
>>>
>>>uH

>>>
>>>
>>>>at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4 ohms
>>>>is
>>>>based on an approximate Q of 400.
>>>>
>>>>Incidentaly I am working at another location this morning. The computer
>>>
>>>is
>>>
>>>
>>>>an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The NEC
>>>
>>>code
>>>
>>>
>>>>here takes 17 seconds to run.
>>>>
>>>>73,
>>>>
>>>>Frank
>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>news:43F95307.5020601@comcast.net...
>>>>
>>>>
>>>>>I see the length is set to 1.8 meters already. A 2 meter elevation
>>>
>>>minimum
>>>
>>>
>>>>is
>>>>
>>>>
>>>>>needed to lower ground effects.
>>>>>
>>>>>How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance
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>>>does
>>>
>>>
>>>>that
>>>>
>>>>
>>>>>translate to? How did you calculate this value? Dan
>>>>>
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>>>>
>>>>
>>>>>>but from your comments it appears you are using a vertical about 23 ft
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>>>>high.
>>>>
>>>>
>>>>>>Such a monopole would have a 3.5 ohm input impedance when placed above
>>>
>>>a
>>>
>>>
>>>>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a center
>>>>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6
>>>
>>>dBi.
>>>
>>>
>>>>>>Base loading provides an input impedance of 5.5 ohms with almost the
>>>>
>>>>same
>>>>
>>>>
>>>>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3"
>>>
>>>above
>>>
>>>
>>>>an
>>>>
>>>>
>>>>>>average ground, the input impedance increases to 40 ohms, and
>>>
>>>gain -6.3
>>>
>>>
>>>>dBi.
>>>>
>>>>
>>>>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
>>>>>>(antenna base end) drops the input impedance to 37 ohms, and gain -6.4
>>>>
>>>>dBi.
>>>>
>>>>
>>>>>>Don't know why this does not agree with Reg's program. Probably I
>>>
>>>made
>>>

>>>
>>>>some
>>>>
>>>>
>>>>>>fundamental error with the NEC model. Included the code below, so you
>>>>
>>>>may
>>>>
>>>>
>>>>>>see an error I missed.
>>>>>>
>>>>>>73,
>>>>>>
>>>>>>Frank
>>>>>>
>>>>>>CM 75 m Vertical 23 ft high
>>>>>>CE
>>>>>>GW 1 64 0 0 23 0 0 0.25 0.0026706
>>>>>>GW 2 12 0 0 0.25 6 0 0.25 0.0026706
>>>>>>GM 1 9 0 0 36 0 0 0 002.002
>>>>>>GS 0 0 .3048
>>>>>>GE 1
>>>>>>GN 2 0 0 0 13.0000 0.0050
>>>>>>EX 0 1 64 0 1.00000 0.00000
>>>>>>LD 5 1 1 184 5.8001E7
>>>>>>LD 4 1 33 33 4 1600
>>>>>>LD 4 2 1 1 4 1750
>>>>>>LD 4 3 1 1 4 1750
>>>>>>LD 4 4 1 1 4 1750
>>>>>>LD 4 5 1 1 4 1750
>>>>>>LD 4 6 1 1 4 1750
>>>>>>LD 4 7 1 1 4 1750
>>>>>>LD 4 8 1 1 4 1750
>>>>>>LD 4 9 1 1 4 1750
>>>>>>LD 4 10 1 1 4 1750
>>>>>>LD 4 11 1 1 4 1750
>>>>>>FR 0 11 0 0 3.5 0.05
>>>>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
>>>>>>EN
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>>
>>>>>>>Frank,
>>>>>>>
>>>>>>>Good morning. Let me start at the beginning. I have a loaded vertical
>>>

>>>on
>>>
>>>
>>>>>>75
>>>>>>
>>>>>>
>>>>>>
>>>>>>>meters. The combination of the antenna and ground measure about 40
>>>
>>>Ohms
>>>
>>>
>>>>at
>>>>
>>>>
>>>>>>the
>>>>>>
>>>>>>
>>>>>>
>>>>>>>antenna. The models all show such an antenna over a perfect ground
>>>>
>>>>should
>>>>
>>>>
>>>>>>have a
>>>>>>
>>>>>>
>>>>>>
>>>>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
>>>>
>>>>system
>>>>
>>>>
>>>>>>is
>>>>>>
>>>>>>
>>>>>>
>>>>>>>less the 10% efficient.
>>>>>>>
>>>>>>>This then is a journey to reduce ground resistance. Attempts to add
>>>>>>
>>>>>>radials and
>>>>>>
>>>>>>
>>>>>>
>>>>>>>wire mesh to the ground have had very little if no effect. This leads
>>>
>>>to
>>>
>>>

>>>>>>Reg's
>>>>>>
>>>>>>
>>>>>>
>>>>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH tuned
>>>>
>>>>to
>>>>
>>>>
>>>>>>a 2
>>>>>>
>>>>>>
>>>>>>
>>>>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4 Ohms
>>>>>>
>>>>>>range.
>>>>>>
>>>>>>
>>>>>>
>>>>>>>Together this should result is a 8 Ohm system. The ratio can be
>>>
>>>directly
>>>
>>>
>>>>>>>inferred as an performance improvement of 5 to 1 or 7 db. This is
>>>
>>>worth
>>>
>>>
>>>>>>some
>>>>>>
>>>>>>
>>>>>>
>>>>>>>effort.
>>>>>>>
>>>>>>>To answer your question the first step will be one coil and one
>>>
>>>radial.
>>>
>>>
>>>>>>The
>>>>>>
>>>>>>
>>>>>>
>>>>>>>objective is the get the antenna system close to 10 Ohms. From there I
>>>>>>
>>>>>>will
>>>>>>
>>>>>>
>>>>>>

>>>>>>>experiment with adding radials and coils. I am not sure what to
>>>
>>>expect.
>>>
>>>
>>>>>>>Thanks - Dan
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>Frank wrote:
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>>>>>>>Not sure I understand what is going on Dan. Are you planning on
>>>>
>>>>loading
>>>>
>>>>
>>>>>>>>>>>>each radial element?
>>>>>>>>>
>>>>>>>>>Frank
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>>>>>>>news:43F79966.3070004@comcast.net...
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>>>>>>>>These results were from Reg's c_poise program. The band is 75 meters
>>>>
>>>>and
>>>>
>>>>
>>>>>>>>>>>>>>>>the coils were about 70 uH. The coils were a relatively large
>>>>
>>>>diameter,
>>>>
>>>>
>>>>>>>>>>on
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>>>>>>>the order of a meter. The wire lengths were about 20 meters. By
>>>>
>>>>varying
>>>>
>>>>

>>>>>>>>>the length the coil, the coil wire may be varies from 1mm to 12mm.
>>>>>>>>>
>>>>>>>>>Richard Clark wrote:
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
>>>>>>>>>><dansawyeror@comcast.net> wrote:
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>>The devil is in the details. Modeling shows large coils with 1 mm
>>>>
>>>>wire
>>>>
>>>>
>>>>>>have a Q in the range of a few hundred. On the other hand a coil
>>>>
>>>>with
>>>>
>>>>
>>>>>12
>>>>>
>>>>>
>>>>>
>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is about 6
>>>>>
>>>>>Ohms
>>>>>
>>>>>
>>>>>
>>>>>>while the 12 mm coil is on the order of 1 Ohm.
>>>>>>>>>>>
>>>>>>>>>>>Given these model results it says there is a significant
>>>
>>>difference
>>>
>>>
>>>>>>between 1 mm and 12 mm coils.
>>>>>>>>>>
>>>>>>>>>>
>>>>>>>>>>Hi Dan,
>>>>>>>>>>
>>>>>>>>>>In the details, indeed. What is the LENGTH of wire in this 6 Ohm
>>>>>>>>>>resistor? What is the LENGTH
>>>>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these "large

>>>>>>>>>>coils?" What is their diameter? What is their solenoid length?
>>>>>>>>>>
>>>>>>>>>>Without these details, there is nothing said that is significant.
>>>>>>>>>>
>>>>>>>>>>73's
>>>>>>>>>>Richard Clark, KB7QHC
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>

1599. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 05:28:55 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dte8en0ngu@enews1.newsguy.com>
Source record: 64211

ORIGINAL MESSAGE:

KG0WX wrote:

> Thanks to all you guys for enlightening me. I did an experiment
> - I tuned the dipper to 146.520 (not easy to get it right there) and
> took my HT out for a walk. I could hear the carrier out to about
> 400 yards! I'm in a wire mesh/stucco/aluminum siding structure
> in the city so that kind of output from an instrument is surprising.
>
> Imagine what it would have done if I inductively coupled to my GP-6
> at 25' ? lol! Next I'll try it on HF with my K2....
>
> Ken KG0WX

~~~~~~
Back in the '50s or '60s there was a book published wherein the hero was trapped or something and called for help by sending CW with a grid dip meter. Don't remember any details but it was a great read when I was a teenager.

73, Bill W6WRT
~~~~~~

1600. Re: 2m/440 antenna Q's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 06:13:24 UTC
From: Bill Berris <wjberris@NOSPAMsbcglobal.net>
Message-ID: <8cyKf.32832$Jd.22704@newssvr25.news.prodigy.net>
Source record: 64212

"WS4V" <ws4v@Xwk4w.com> wrote in message
news:vMOdnetFrvIkFGfeRVn-qQ@adelphia.com...
> Probably the gutter is made of aluminum if put up in recent years so that
> won't work. Put a dual band mobile on a 6"X6" sheet of thin steel and make
> four radials about 16" and bend them down at a 45 degree angle from the
> corners of the plate. Mount them to the steel plate with small bolts and
> nuts. Put the whole thing in the corner of your room. Unless you are in
> metal building the antenna will work about as well as it would outside...
> and yes it will be light years ahead of a duck.
> Ken
> remove the X in the address to reply.

Thanks for the info... the portability of the design (and the design Dot
posted) look great... I will probably try one of those and maybe something
like this in addition --> http://www2.arrl.org/tis/info/pdf/0302038.pdf

What do you guys think of that one?

--
Bill Berris, KF6CNP
Salida, CA

1601. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 07:13:30 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1140506010.185894.326420@o13g2000cwo.googlegroups.com>
Source record: 64213

Totally plausible as I have noticed when I tune a FM receiver
to my dipper's carrier, I can deviate the carrier with my voice
if I get close to the case of the dipper. Found that out the other
day when I turned up the volume on my HT and got a squeal
from the dipper!

Now when I'm searching for the carrier and my scanner stops
on a signal, I tap the dipper's case with a coin and not only do
I hear it quite clearly on the scanner but it sounds like a mic
in a coffee can. Helps to differentiate between birdies and my
target carrier.

Love it!

Ken KG0WX

1602. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 13:03:41 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1140527021.538001.280490@z14g2000cwz.googlegroups.com>
Source record: 64215

If there is an Al extrusion plant nearby you can try them. I used to
get it from an Alcoa plant for scrap prices.

1603. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 13:03:43 UTC
From: JIMMIE <JIMMIEDEE123@YAHOO.COM>
Message-ID: <1140527023.594346.219870@g44g2000cwa.googlegroups.com>
Source record: 64214

If there is an Al extrusion plant nearby you can try them. I used to
get it from an Alcoa plant for scrap prices.

1604. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 15:12:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%5GKf.32887$Jd.29320@newssvr25.news.prodigy.net>
Source record: 64216

Bill Turner wrote:
> Back in the '50s or '60s there was a book published wherein the hero
> was trapped or something and called for help by sending CW with a grid
> dip meter. Don't remember any details but it was a great read when I
> was a teenager.

One of the Hardy Boys books was about ham radio.
--
73, Cecil http://www.qsl.net/w5dxp

1605. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 15:19:42 UTC
From: Gloria <gloair_ramos@grdesigners.com>
Message-ID: <43FB2F8D.A7725602@nospam.com>
Source record: 64217

Hi,

I know you asked for a local source,
I have used this guy on ebay stores,
his pricing is very good and he ships
us priority mail with tracking.

http://stores.ebay.com/TRINITY-METAL-SALES_W0QQsspagenameZFAVQ3aFQ3aSLLRQQtZkm

1606. Is there any simulation software of antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 15:25:22 UTC
From: Jackie <Shuangshuang.Zhou@gmail.com>
Message-ID: <1140535522.641436.276000@o13g2000cwo.googlegroups.com>
Source record: 64218

thanks.

1607. Re: What the?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 15:30:18 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <igbmv1hlps2o4ejf8fnqa9tdf77d6dtftk@4ax.com>
Source record: 64219

On 19 Feb 2006 18:38:17 -0800, "KG0WX" <kg0wx@yahoo.com> wrote:

>Thanks to all you guys for enlightening me. I did an experiment
>- I tuned the dipper to 146.520 (not easy to get it right there) and
>took my HT out for a walk. I could hear the carrier out to about
>400 yards! I'm in a wire mesh/stucco/aluminum siding structure
>in the city so that kind of output from an instrument is surprising.
>
>Imagine what it would have done if I inductively coupled to my GP-6
>at 25' ? lol! Next I'll try it on HF with my K2....

Back in the sixties I was living on a postage stamp sized lot in the city and working 2M EME.

Some W6 moved to the next street over and decided what Tucson needed was his crappy 2M repeater on the air.

Shortly after he moved in, while I was on the air, the next door neighbor calls and said that I was creaming her TV. I hadn't changed anything in months, but nevertheless began a witch hunt for my problem. After a fruitless search I decided that maybe it was the repeater and not me. Not owning an FM rig, I needed another way to bring it up and thought of the GDO.

Swish swish and up it came (but with no TVI). It took more detective work to figure out that it took my signal being on the air when the repeater transmitted to clobber the TV. I let my automatic keyer run the transmitter while walked next door to the neighbor's with the GDO and went swish swish and the TV choked. I guess his receiver wasn't up to handling 100KW erp a couple of hundred of yards away. [g]

1608. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 15:58:05 UTC
From: Bob Spooner <rls19@psu.edu>
Message-ID: <dtfdae$1j6s$1@f04n12.cac.psu.edu>
Source record: 64220

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11vkrtkc63fde98@corp.supernews.com...
> ... But having spent quite a few hours studying various patents for their
> design, it looks like some might work much better than others.
>
> Roy Lewallen, W7EL
>

Roy,

Would you share with us which ones you think would work better?

73,
Bob AD3K

1609. 20 Meter Dipole - instant DX!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 16:35:32 UTC
From: Radio TexMex <ke5ckrIGNORECAPS@gmail.com>
Message-ID: <dK-dnaQIc_uG3GbeRVn-iA@giganews.com>
Source record: 64221
Cross-posted to: rec.radio.shortwave,rec.radio.amateur.antenna

For the last 6 months I've been using a 1/2 wave 40m dipole sloping from an oak tree in the back your to a peach tree in the front. This has worked great for 40. I use this for amateur activity as well as SWL stuff with an MFJ tuner. I always noticed that on some bands, particularly around 20 meters, I couldn't receive as well I thought was possible. The closest thing to DX I've worked was a station in Costa Rica.

Well I finally got around to stringing up a simple 1/2 wave dipole with a 4:1 balun, cut just for 20 Meters. I strung one end from the same point the in the oak tree that my 40m dipole uses but I wanted to keep them angled at least 95 degrees away from each other to keep them from interacting. Because of this, I ended up sloping this fella down into the backyard between the oak and another tree and tied it off to a martin house. I was worried about the fact that I couldn't position this dipole any better away from the trees - and/or higher.

I finally got a chance to try it out yesterday after all the above ground power line noise dyed down, and wouldn't you know it, ACTIVITY EVERYWHERE on 20!!! Way more than I'm use to hearing with my 40m and the tuner.

The 3rd station I worked was in Serbia!!! And I can only squeeze 50 watts out of my Yaesu FT101B on 20m.

Moral of this story: I've learned you can only get so much performance out of an unmatched antenna with a tuner.

Cheers! - Matt

1610. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 16:44:03 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1140540243.903859.23400@o13g2000cwo.googlegroups.com>
Source record: 64222

> I am using 4nec2 and am getting errors from the GM card. Wasn't there an issue
> with these being a decimal instead of an integer?

Yes, it was and still is. 'Original' Nec2 does not understand the
Necwin+ syntax for the last field in the GM card when the 'x.y' format
is used. Within (modified) Necwin+ the ITS (imov)field with the x.y
format does move all (preceding) wires with tags from 'x' up to tag
'y'.

With default Nec2 the x.y field is rounded to an integer and all wires
with tags from 'x' up to the one just preceding the GM card are moved,
so no explicit 'end-tag' is specified.

When using Nec4 one can specify both the start- and stop tag- and
segment-numbers on four separate fields.

Arie.

1611. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 17:06:17 UTC
From: diannamelrose@gmail.com
Message-ID: <1140541577.324412.146060@g43g2000cwa.googlegroups.com>
Source record: 64223
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

Sal M. Onella wrote:
> However, will watch for incipient flame wars and take kill-file action, as
> needed.

Understandable :)

This is how Lyle Blake alwas works ... just be sensbly aware.

I can tell you what he intends to flame about here - on another
newsgroup he is claiming that Industry Casnada is denying him the
ability to take the Ameteur Radio test because of his gender
presentation (he is makle but like to dress in woman's clothes). The
reality is likely that he is just to psycho to be able to arrange a
test date.

Here is an out take of what he is saying in other groups - just
forewarning you about it here - FYI:

FWIW - On another newsgroup he made (another) death threat against me
because I spoilt his "fun" here ...

http://groups.google.com/group/alt.support.crossdressing/msg/3c7c45f0219fa598?dmode=source
&hl=en

Dot wrote:
> I wanted to get my Amateur Radio License. In Canada it's 150, multiple
> choice questions that take about an hour to finish. Industry Canada, which
> oversees the whole thing has delegated the task of administering these tests
> to the Amateur Radio clubs through a system of "examiners" in each club.
>
> I have a landlord problem here. Every time there's communication between me
> and my landlord it always ends up in veiled threats of eviction. Me being a
> transie bugs his ass to no end, we are fire and ice and no reconciliation is
> possible.

.....

> Ok, now... time to write my tests and get my license. I calls up the local
> examiner and, oh my god... the guy is my landlord's collection agent! He
> knows all about me, in the worst possible way of course, before I even gets
> there. (and, in a city of 180,000 what are the odds?)

>
> This sets off an chain of events (the part I can't really go into) with
> transphobia spreading like wildfire, that ends up with 6 examiners in 3
> cities refusing to let me write my tests. Industry Canada is running around

> like a chicken with it's head cut off trying to figure what to do. The
> local Club is backing the examiners. The national Association is backing
> me. And the whole thing is one horrific mess that's only going to get worse
> before it gets better.
>
> End result... 6 weeks into this and I still haven't written my tests.

>
> I know I'll pass. In trial tests, I'm scoring in the low 90s on my Basic
> and mid 80s on the Advanced (morse code is optional in Canada) but I have so
> far been unable to find anyone who will sit with me for an hour while I
> write the tests.
>
> And yes, this is all because I am transgendered. It's the only explanation
> that makes any sense in the circumstances.

1612. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 17:06:19 UTC
From: JIMBO <jim.gm4dhj@ntlworld.com>
Message-ID: <fMHKf.51493$Rw6.31018@newsfe7-gui.ntli.net>
Source record: 64224
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

> newsgroup he is claiming that Industry Casnada is denying him the
> ability to take the Ameteur Radio test because of his gender
> presentation (he is makle but like to dress in woman's clothes).

Gender Presentation!!!!! in Casnada !!!.........A makle in wummins
clothes...BONA

1613. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 17:17:07 UTC
From: Mike G4KFK <mike@g4kfk.co.uk>
Message-ID: <1140542227.813378.26820@g14g2000cwa.googlegroups.com>
Source record: 64225
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

diannamelrose@gmail.com wrote:
(utter drivel)

Why have you cross-posted this stupid thread from
rec.radio.amateur.antenna into uk.radio.amateur?

We already have a homegrown loonie in this newsgroup. We don't need to
import any more thanks!

73
Mike G4KFK

1614. New yahoo group. Receive VMS from Inmarsat and decode the signals.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 17:36:36 UTC
From: Michael <ccc73571@vip.cybercity.dk>
Message-ID: <6AsKf.5692$x5.2815@news.get2net.dk>
Source record: 64200

My name is Michael. I'm educated as electronic mechanic. I started a project with the goal to receive and decode the VMS signals from Inmarsat. VMS system is manly used on fishing vessels. On the ship there is a box with a gps and satellite transceiver. The
position information is send each hour, to a land earth station, were it is distributed to the different authorities. I hope that many of you will help and contribute to get this working, because I don't have all the skills my self.

First I started to ask people in different news group about the subject. But I now realized that it will be a bigger task. So I have made a Yahoo group to get this thing going. I have in this group posted the information I have gathered until now. If you think you maybe can contribute to the project then, or is interested in this as well, then please join at

http://groups.yahoo.com/group/vms_group

Cheers Michael

1615. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 18:07:46 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vmlnn27fg50f4@corp.supernews.com>
Source record: 64276

Bob Spooner wrote:
> "Roy Lewallen" <w7el@eznec.com> wrote in message
> news:11vkrtkc63fde98@corp.supernews.com...
>> ... But having spent quite a few hours studying various patents for their
>> design, it looks like some might work much better than others.
>>
>> Roy Lewallen, W7EL
>>
>
> Roy,
>
> Would you share with us which ones you think would work better?
>
> 73,
> Bob AD3K

Sorry, it's been nearly 20 years since I went through the patents, and I don't recall all the various modifications and innovations I came across. And I don't have any idea which might have been included in commercial designs. Surely someone has done some comparative measurements of various commercial units and published the results. If not, it sounds like a good project for someone interested in using through-glass antennas. I'm not one of them.

Roy Lewallen, W7EL

1616. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 20:10:59 UTC
From: stargatesg1 <me@verizon.net>
Message-ID: <ntKKf.3523$0z.3214@trnddc01>
Source record: 64277

You might also try metal scrap yards in your area. they can sometimes order tubing at very good prices.

"Gloria" <gloair_ramos@grdesigners.com> wrote in message news:43FB2F8D.A7725602@nospam.com...
> Hi,
>
> I know you asked for a local source,
> I have used this guy on ebay stores,
> his pricing is very good and he ships
> us priority mail with tracking.
>
>
http://stores.ebay.com/TRINITY-METAL-SALES_W0QQsspagenameZFAVQ3aFQ3aSLLRQQtZkm
>
>
>

1617. Connectors

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 20:36:30 UTC
From: Dave Piggin <d.piggin@zetnet.co.uk>
Message-ID: <3130303038373833543FB79CE79@zetnet.co.uk>
Source record: 64278

Hi to all.
> What's the correct designation for the Female ?

"UHF" feed lines are usually and commonly terminated with a 'N' Type plugs into a 'N' Type Socket.
"VHF" fed lines are usually and commonly terminated with PL259 plugs into a SO259 Socket.
The indicator, PL represents a Plug, and SO represents a Socket.

If you think of it in a bodily manner, relate to it as Male= PL and Female= So, and so a [male enters the female]
Take a look at any "UHF" transceiver and you will find that it's a 'N' Type socket on the rear entry of the rig, a far superior plug to the PL253/8/9 Etc Etc Series.

Dual band transceivers are terminated at the rear by a PL259 socket.
Hope this helps. Cheers Dave.

--
Amateur Radio Call Sign M1BTI, Located in Manchester England.
Locator square IO83TK
Chairman Of Trafford Radio Club. Club Call Signs G0TRG & M1BBP
Located at Umist, University Of Manchester Institute For Science And Technology
Share What You Know, Learn What You Dont.

1618. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 21:01:02 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtfv2e$r2j$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64279

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:11vkk5vrumlac0a@corp.supernews.com...
> Reg Edwards wrote:
> >
> > Roy, you seem to have forgotten proximity effect.
> >. . .
>
> Forgotten? I just didn't see what relevance it had on the difference
in
> Q between an inductor made from a braided coax shield and one made
from
> solid tubing. And I can't see from your posting anything which adds
to
> that discussion. But maybe I'm missing something?
>
> Roy Lewallen, W7EL

==

Yes, Roy, you are missing something.

1619. Re: 20 Meter Dipole - instant DX!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 21:06:08 UTC
From: Radio TexMex <ke5ckrIGNORECAPS@gmail.com>
Message-ID: <y6Sdnc-U9MwYHWbenZ2dnUVZ_sKdnZ2d@giganews.com>
Source record: 64280

Radio TexMex wrote:

> For the last 6 months I've been using a 1/2 wave 40m dipole sloping from
> an oak tree in the back your to a peach tree in the front. This has worked
> great for 40. I use this for amateur activity as well as SWL stuff with an
> MFJ tuner. I always noticed that on some bands, particularly around 20
> meters, I couldn't receive as well I thought was possible. The closest
> thing to DX I've worked was a station in Costa Rica.
>
> Well I finally got around to stringing up a simple 1/2 wave dipole with a
> 4:1 balun, cut just for 20 Meters. I strung one end from the same point
> the in the oak tree that my 40m dipole uses but I wanted to keep them
> angled at least 95 degrees away from each other to keep them from
> interacting. Because of this, I ended up sloping this fella down into the
> backyard between the oak and another tree and tied it off to a martin
> house. I was worried about the fact that I couldn't position this dipole
> any better away from the trees - and/or higher.
>
> I finally got a chance to try it out yesterday after all the above ground
> power line noise dyed down, and wouldn't you know it, ACTIVITY EVERYWHERE
> on 20!!! Way more than I'm use to hearing with my 40m and the tuner.
>
> The 3rd station I worked was in Serbia!!! And I can only squeeze 50 watts
> out of my Yaesu FT101B on 20m.
>
>
> Moral of this story: I've learned you can only get so much performance out
> of an unmatched antenna with a tuner.
>
> Cheers! - Matt

Before someone beats me too it, I've already had somebody point out the goofy flaw with my new super awesome 20M dipole. And after doing some much needed reading on baluns, I've concluded that the 4:1 balun isn't needed.

Readers: Please be patient. Learning process taking place here.

1620. Re: 20 Meter Dipole - instant DX!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 21:26:43 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtg0ij$1pr$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64281

"Radio TexMex" wrote

> Before someone beats me too it, I've already had somebody point out
the
> goofy flaw with my new super awesome 20M dipole. And after doing
some much
> needed reading on baluns, I've concluded that the 4:1 balun isn't
needed.
>
> Readers: Please be patient. Learning process taking place here.
>
==========

Reading about 4:1 baluns makes one imagine a 4:1 balun is
cessary - whereas most likely it isn't.

Reg.

1621. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 21:34:10 UTC
From: know code <know_code@wanadoo.nl>
Message-ID: <43FB8752.2010907@wanadoo.nl>
Source record: 64282
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

Dot wrote:
> On 21 Feb 2006 09:17:07 -0800, "Mike G4KFK" <mike@g4kfk.co.uk> wrote:
>
>> diannamelrose@gmail.com wrote:
>> (utter drivel)
>>
>> Why have you cross-posted this stupid thread from
>> rec.radio.amateur.antenna into uk.radio.amateur?
>
> Because it has more negative impact on me if she does.
> Next, she's going to accuse me of doing it!
>
> That's her sickness... she goes into a newsgroup makes a pissing mess of the
> place, floods it with anon postings, makes all kinds of wild accusations,
> gets the whole place flaming hot... and then blames me.
>
> She's out to make a mess of my life any way she can. Fortunately she's not
> very good at it and mostly my friends and I just sit around and laugh at her
> latest bout idiocy.
>
> If you keep track it's pretty obvious what she's doing.
>
> Anyway... just toss the wanker in your kill files and forget about her.
>

You really think we care how she messes with you? Here's a clue, we don't!

--

1622. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 23:21:56 UTC
From: know code <know_code@wanadoo.nl>
Message-ID: <43fba094$0$85254$dbd41001@news.wanadoo.nl>
Source record: 64283
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

Dot wrote:
> On Tue, 21 Feb 2006 22:34:10 +0100, know code <know_code@wanadoo.nl> wrote:
>
>>> Anyway... just toss the wanker in your kill files and forget about her.
>> You really think we care how she messes with you? Here's a clue, we don't!
>
> [sigh] We've never even spoken and already you are hostile.

You crosspost your crap to uk.radio.amateur and you wonder why people
are hostile? Jeez, some people!

If your 'friend' posts to uk.r.a with the crap you claim, there are
enough people here who could tie her up in knots and make he wish she'd
never bothered :)

--

1623. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 23:24:25 UTC
From: Mike G4KFK <mike@g4kfk.co.uk>
Message-ID: <1140564265.889829.196500@z14g2000cwz.googlegroups.com>
Source record: 64284
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

know code wrote:
> If your 'friend' posts to uk.r.a with the crap you claim, there are
> enough people here who could tie her up in knots and make he wish she'd
> never bothered :)

Is this a 5-minute argument or the full half-hour?

1624. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 23:48:35 UTC
From: DieSea <DieSea.NoSpamPlease@ntlworldd.ccom>
Message-ID: <43fba6d2$0$29574$da0feed9@news.zen.co.uk>
Source record: 64285
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

RATHER A GOOD IDEA
YOU CAN PUT ME IN YOUR KILL FILE AS WELL

Not only for SHOUTING but for TOP POSTING AS WELL

Bye Bye

DieSea

"Dot" <dot@dot.dot> wrote in message
news:8h8nv1l8i18bk8ajei1jtlub4j5l66hm96@4ax.com...
> On 21 Feb 2006 15:24:25 -0800, "Mike G4KFK" <mike@g4kfk.co.uk> wrote:
>
>>
>>know code wrote:
>>> If your 'friend' posts to uk.r.a with the crap you claim, there are
>>> enough people here who could tie her up in knots and make he wish she'd
>>> never bothered :)
>>
>>Is this a 5-minute argument or the full half-hour?
>
> It's over. I've just put all concerned in my kill files. Including you.
>
>

1625. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-21 23:48:37 UTC
From: Mike G4KFK <mike@g4kfk.co.uk>
Message-ID: <1140565717.562552.155220@g14g2000cwa.googlegroups.com>
Source record: 64286
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

Dot wrote:
> It's over. I've just put all concerned in my kill files. Including you.

T'riffic! All you need to do now then is set the follow-ups back to
r.r.a.a and we can all go back to sleep :-)

1626. ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 03:06:16 UTC
From: someone@somedomain.com.invalid
Message-ID: <IyQKf.18144$Ug4.11471@dukeread12>
Source record: 64287

[No readable article body recovered]

1627. Re: Noisy Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 04:12:21 UTC
From: David Thompson <thompson@mindspring.com>
Message-ID: <FwRKf.1628$F56.1217@newsread3.news.atl.earthlink.net>
Source record: 64288

Glenn,

I suspect you just have a noisy environment. You probably need a noise machine such as the ANC-4 or MFJ 1026. You might also try a noise antenna such as a K9AY loop. I have one K9AY loop and it really helps pull them from the noise. I am fairly quiet on 80 but very noisy on 160.

73 Dave K4JRB

1628. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 04:35:40 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <URRKf.116$Uc2.84@fed1read04>
Source record: 64289

<samuel.lawrence@optusnet.com.au> wrote in message
news:1140420029.713791.128680@g47g2000cwa.googlegroups.com...
> Hello,
>
> A friend of mine live in outback NSW and wants to install a 5w FM
> Transmitter on his property to transmit music between buildings - 88 -
> 108mhz - can anybody suggest an antenna for this purpose - maybe a link
> to manufacturer/distributor in Australia? Yes we understand that it is
> most probably illegal but think that signal will not drift off
> property.
>
> Thanks in advance.
>

First, 5W will likely go out 5 miles. I know because 100 mW will go beyond
1/2 mile, per my own tests. Please appreciate the interference potential
of that unlicensed 5W signal.

The ideal antenna for this is the folded dipole antenna, hand-made of TV
receiving twin-lead wiring -- the flat stuff, consisting of two conductors
having about one centimeter spacing. You make the antenna with that
leadwire
and you feed it with that same leadwire. You must NOT have any of it run
along
or against metallic material of any type. That's what stand-offs are made
for.

Have a look at http://www.wisegeek.com/what-are-fm-antennas.htm , especially
the dimensions in the second paragraph. Antennas are reciprocal; one that
works
for transmitting will work for receiving, so you build two. You can fasten
the
antennas to wood sticks for their physical support (essential for a medium
as
floppy and flexible as twin-lead).

Let us know how this progresses. (Makes the typing seem worthwhile.)

I see the actual construction details are lacking in the reference I
offered.
Then try this one, too:

http://www.kgnu.org/howtohear/antenna.html

Good luck.

1629. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 04:51:29 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <K4SKf.117$Uc2.50@fed1read04>
Source record: 64290

<david@drumheller.org> wrote in message
news:1140474918.828207.324820@g14g2000cwa.googlegroups.com...
> I'd like to design and build a new 2-meter Yagi antenna, and would
> like to construct it using aluminum tubing and rod. Drawn tubing--the
> stuff with an axial seam--would suffice.
>
> Anyone know of a good source for this stuff in Washington DC or nearby
> areas in Maryland? I've tried Home Depot and the like, but the stock
> available in these places is incomplete and expensive.
>
> -Dave, K3WQ
>

I use my stash of busted-up TV antennas from behind the garage. Trouble is,
I'm in California and thus of no help to you.

Do you or your neighbors have a wasted TV antenna on a reachable roof or
chimney???

John
KD6VKW
(Fort Meade, 1970 - 1972)

1630. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 05:23:36 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <RySKf.124$Uc2.63@fed1read04>
Source record: 64291

"Harbin" <harbinjr@adelphia.net> wrote in message
news:sOmdnbJ0OueQx2fenZ2dnUVZ_v6dnZ2d@adelphia.com...
> Howdy Y'all:
>
> I have a fiberglass roof on my Landcruiser, and I was wondering if I
can use a halfwave roof mounted antenna?
> For some reason, I think since the halfwave is end loaded, that it will
not work on my fiberglass roof, and that
> it uses a steel roof as part of the match. Am I wrong here? The only other
thing I can think of is some kind of
> stainless steel J pole on a mount coming off the back. And what about a
dual band that will work on fiberglass?
> Anybody work with this problem before?
>
> SeeYaa:) Harbin
>
>

Vehicle roof-mounted antennas are commonly quarter-wave whips. I know there are 5/8 wave whips but I am not prepared to address their use.

How flat is the roof? If it's flat enough to permit you to cement a sheet of steel to it, then use a mag-mount. I know the sheet of steel needs to be only about the size of a TV tray, since that's what I used and got a good match with an MFJ El-Cheapo dual band magmount. (I happened not to be using it on a vehicle roof; however, the TV tray made a satisfactory ground plane, anyway.)

My non-ham buddy used this basic method on his motor home roof for a magmount CB antenna that was much longer than the MFJ dual-bander. It never blew over and the sheet of steel never came loose.

So, can you glue/cement/bond/rivet/nail/staple/tape a 2-ft by 2-ft piece of galvanized steel to your roof? (Caution: Stainless is often non-magnetic.)

I love J-poles. I make them out of copper pipe but have no vehicle experience with them. The J-pole is a half-wave antenna that works great in free space and requires no ground plane.

More?

1631. Re: Connectors

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 05:30:53 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <GFSKf.127$Uc2.111@fed1read04>
Source record: 64292

"Dave Piggin" <d.piggin@zetnet.co.uk> wrote in message
news:3130303038373835 43FB79CE79@zetnet.co.uk...
> Hi to all.
> > What's the correct designation for the Female ?
>
> "UHF" feed lines are usually and commonly terminated with a 'N' Type
> plugs into a 'N' Type Socket.
> "VHF" fed lines are usually and commonly terminated with PL259 plugs
> into a SO259 Socket.
> The indicator, PL represents a Plug, and SO represents a Socket.
>
> If you think of it in a bodily manner, relate to it as Male= PL and
> Female= So, and so a [male enters the female]
> Take a look at any "UHF" transceiver and you will find that it's a 'N'
> Type socket on the rear entry of the rig, a far superior plug to the
> PL253/8/9 Etc Etc Series.
>
> Dual band transceivers are terminated at the rear by a PL259 socket.
> Hope this helps. Cheers Dave.
>
> --
> Amateur Radio Call Sign M1BTI, Located in Manchester England.
> Locator square IO83TK
> Chairman Of Trafford Radio Club. Club Call Signs G0TRG & M1BBP
> Located at Umist, University Of Manchester Institute For Science And
> Technology
> Share What You Know, Learn What You Dont.

Might not the socket connector be called SO-239? I did a quick "Google"
before sending this.

1632. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 05:47:04 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <RUSKf.130$Uc2.57@fed1read04>
Source record: 64293

<someone@somedomain.com.invalid> wrote in message
news:IyQKf.18144$Ug4.11471@dukeread12...
>
>
>
http://64.71.184.220/eng/gpspatch.txt

http://www.arrl.org/tis/info/pdf/0210036.pdf

http://vancouver-webpages.com/peter/gpspatch.gif

1633. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 08:00:22 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1140595222.293971.130790@g47g2000cwa.googlegroups.com>
Source record: 64294

You want an antenna, or a GPS receiver with antenna? Not sure what you'd need USB for, if you want just an antenna. (Most antennas with LNAs built in power the antenna amplifier from "phantom" power on the receiver's antenna connector.) -- If you want a USB GPS receiver for you laptop, I'd suggest you just buy one. You should be able to find one on ebay for around US$50, complete with built-in antenna and magnetic base.

1634. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 08:05:43 UTC
From: Lee <lo012a4519@blueyonder.co.uk>
Message-ID: <rXUKf.31812$Q22.24541@fe1.news.blueyonder.co.uk>
Source record: 64295

"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:RUSKf.130$Uc2.57@fed1read04...
>
> <someone@somedomain.com.invalid> wrote in message
> news:IyQKf.18144$Ug4.11471@dukeread12...
> >
> >
> >
> http://64.71.184.220/eng/gpspatch.txt
>
> http://www.arrl.org/tis/info/pdf/0210036.pdf
>
> http://vancouver-webpages.com/peter/gpspatch.gif

Any more designs to suit a Garmin 310 ???

Lee .....G6ZSG.....

1635. Re: Is there any simulation software of antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 13:31:10 UTC
From: Alice <alice_the_cook@atc.fam>
Message-ID: <43FC679E.47A8BBC3@atc.fam>
Source record: 64296

hi jackie,

http://www.eznec.com/

checkout the demo version.

73 alice

1636. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 15:07:34 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <dthunm01r3n@enews1.newsguy.com>
Source record: 64298

ORIGINAL MESSAGE:

Sal M. Onella wrote:

> First, 5W will likely go out 5 miles.

~~~~~~
Better than that, 5w will go to the horizon and slightly beyond. On HF,
I have worked China with 5 watts.

73, Bill W6WRT
~~~~~~

1637. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 15:22:20 UTC
From: George <gschwab@florida-knife.com>
Message-ID: <1140621740.542672.202640@g47g2000cwa.googlegroups.com>
Source record: 64297

Try McMaster Carr, they have all kinds of tubing and they accept Visa
/MC and generally ship same day.

www.mcmaster.com

1638. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 15:51:49 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <822pv1l5vln93vjsdoo9tbjhfinomt2scg@4ax.com>
Source record: 64299

A half wave antenna will work just fine. Several antenna manufacturers
make them for just the type vehicle you have, corvettes,boats etc.

73
Gary K4FMX

On Mon, 20 Feb 2006 16:08:49 -0800, "Harbin" <harbinjr@adelphia.net>
wrote:

>Howdy Y'all:
>
> I have a fiberglass roof on my Landcruiser, and I was wondering if I can use a halfwave
roof mounted antenna?
>For some reason, I think since the halfwave is end loaded, that it will not work on my
fiberglass roof, and that
>it uses a steel roof as part of the match. Am I wrong here? The only other thing I can
think of is some kind of
>stainless steel J pole on a mount coming off the back. And what about a dual band that
will work on fiberglass?
> Anybody work with this problem before?
>
>SeeYaa:) Harbin
>

1639. Re: Noisy Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 16:29:02 UTC
From: glenn.b.dixon@gmail.com
Message-ID: <1140625742.806111.19060@g43g2000cwa.googlegroups.com>
Source record: 64300

Thanks for both your suggestions. Since my original post, I've attached a common-mode choke near the top of the open-wire feed with what seems to be excellent results (I originally wanted a sort of Windom action, but not on the noise!). I suspected, along with John, that some vertical noise components were getting in due to coupling from the vertical feedilne to the unbalanced feed on the dipole. The dipole now tunes as I expected it to originally, and S/N does not shift with tuning, as far as I can tell. By the way, the vertical open wire line runs up near the side of a three story high aluminum siding slab, and I wonder if that was a factor...

The antenna's noise has now dipped below my HF rig's (an old one--may need alignment) noise floor on several occasions, even on 40M. My main surprise from this activity was that antenna tuning affected the antenna S/N. I didn't know that happened.

David, your noise loop--I assume that's designed to receive noise and not signal, allowing a noise cancelling box to be of use, or is it visa-versa?

73,
Glenn AC7ZN

1640. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 16:39:35 UTC
From: Frank's Basement 2 <francis@nospam.carolyns-creations.com>
Message-ID: <bt0Lf.9609$_62.2845@edtnps90>
Source record: 64301

Dan,

Will be interested to know how you get on with the antenna. I suspect that adding loading coils to radials is about the same as adding loading coils to any part of an antenna system. They do nothing to effect the radiation efficiency, only modify the input impedance.

73,

Frank

> The effect of the radials is a surprise. I would not expect that short radials
> would work well at all? The system predicts about 9 Ohms. That is closer to what
> is expected and over 6 db better then the 50 Ohm reading.
>
> I will try experimenting and let you know.
>
> Thanks - Dan
>
> Frank wrote:
> > That's correct Dan. I just wanted to systematically build up the antenna,
> > adding a component at a time, to note where the major losses are. This was
> > the first trial with no loading -- except for copper conductivity.
> >
> > From the other model you sent me it seems that any other attempts are
> > redundant. The major losses are due to ground loss, as expected.
> > Unfortunately this can only be overcome by increasing the length, and
> > number, of radials -- something that is pretty well known. Also inductive
> > loading of the radials does not seem to have any effect, except for
> > marginally decreasing the antenna efficiency.
> >
> > I have been interested in installing a short monopole for 160m, so am very
> > interested in your results. I have a fairly large lot (visible on "Google
> > Earth), so am not so restricted in radial length.
> >
> > 73,
> >
> > Frank

> >
> >
> > "dansawyeror" <dansawyeror@comcast.net> wrote in message
> > news:43FA2370.6050906@comcast.net...
> >
> >>Frank,
> >>
> >>I tried the nec below. The result was resonant at 21.9 and about 34
Ohms.
> >>I am not competent at reading nec cards yet, however the model editor
does
> >>not show any coil loads. That could explain the frequency?
> >>
> >>Dan
> >>
> >>Thanks - Dan
> >>
> >>Frank's Basement 2 wrote:
> >>
> >>>Dan, here is a preliminary run on a 12 ft monopole model structured as
> >>>follows:
> >>>base at 6 ft, 10 x 6ft radials. All #14 AWG. Ground - perfect,
> >>>frequency
> >>>3.8 MHz.
> >>>
> >>>Zin = 0.968 - j1847.55 ohms;
> >>>Efficiency = 87.4 % (structure copper loss);
> >>>Gain = 4.15 dBi;
> >>>Take-off angle = 0 deg;
> >>>Gain at 27 deg elevation (expected TOA with real ground) = +3.09 dBi.
> >>>
> >>>I will try successive modifications to approach a practical model. The
> >>>code
> >>>I used, modified so it should run in 4nec2, is shown below.
> >>>
> >>>73,
> >>>
> >>>Frank
> >>>
> >>>CM 75 m Vertical 12 ft high
> >>>CM base 6 ft up, 10 X 6 ft radials
> >>>CM copper conductivity
> >>>CE
> >>>GW 1 24 0 0 18 0 0 6 0.0026706
> >>>GW 2 12 0 0 6 6 0 6 0.0026706
> >>>GM 1 9 0 0 36 0 0 0 2
> >>>GS 0 0 .3048
> >>>GE 1
> >>>GN 1
> >>>EX 0 1 24 0 1.00000 0.00000

> >>>LD 5 1 1 144 5.8001E7
> >>>FR 0 11 0 0 3.5 0.05
> >>>RP 0 181 1 1000 -90 0 1.00000 1.00000
> >>>EN
> >>>
> >>>
> >>>"Frank's Basement 2" <francis@carolyns-creations.com> wrote in message
> >>>news:dhmKf.6088$_62.3050@edtnps90...
> >>>
> >>>
> >>>>Dan,
> >>>>
> >>>>The lumped inductance of 4 +j1750 comes from your previous comment
about
> >>>
> >>>the
> >>>
> >>>
> >>>>inductance range from 60 - 90 uH. I just chose the mid range value of
75
> >>>
> >>>uH
> >>>
> >>>
> >>>>at 3.8 MHz. To be exact 2*PI*f*L = 1791 ohms. The real part of 4
ohms
> >>>>is
> >>>>based on an approximate Q of 400.
> >>>>
> >>>>Incidentaly I am working at another location this morning. The
computer
> >>>
> >>>is
> >>>
> >>>
> >>>>an old 600 MHz machine, with 384 MB of RAM, and Windows ME OS. The
NEC
> >>>
> >>>code
> >>>
> >>>
> >>>>here takes 17 seconds to run.
> >>>>
> >>>>73,
> >>>>
> >>>>Frank
> >>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
> >>>>news:43F95307.5020601@comcast.net...
> >>>>
> >>>>

> >>>>>I see the length is set to 1.8 meters already. A 2 meter elevation
> >>>
> >>>minimum
> >>>
> >>>
> >>>>is
> >>>>
> >>>>
> >>>>>needed to lower ground effects.
> >>>>>
> >>>>>How is the lumped inductance set of 4 Ohms and 1750 Z? What impedance
> >>>
> >>>does
> >>>
> >>>
> >>>>that
> >>>>
> >>>>
> >>>>>translate to? How did you calculate this value? Dan
> >>>>>
> >>>>>Frank's Basement 2 wrote:
> >>>>>
> >>>>>
> >>>>>>Hi Dan, thanks for the interesting info. You did not specify
> >>>>
> >>>>dimensions,
> >>>>
> >>>>
> >>>>>>but from your comments it appears you are using a vertical about 23
ft
> >>>>
> >>>>high.
> >>>>
> >>>>
> >>>>>>Such a monopole would have a 3.5 ohm input impedance when placed
above
> >>>
> >>>a
> >>>
> >>>
> >>>>>>perfectly conducting ground, and gain about +4.5 dBi. Adding a
center
> >>>>>>loading coil raises the input impedance to 11.5 ohms, and gain +2.6
> >>>
> >>>dBi.
> >>>
> >>>
> >>>>>>Base loading provides an input impedance of 5.5 ohms with almost the
> >>>>
> >>>>same

> >>>>
> >>>>
> >>>>>>gain as center loading (Q = 400). Adding ten, 6ft radials, at 3"
> >>>
> >>>above
> >>>
> >>>
> >>>>an
> >>>>
> >>>>
> >>>>>>average ground, the input impedance increases to 40 ohms, and
> >>>
> >>>gain -6.3
> >>>
> >>>
> >>>>dBi.
> >>>>
> >>>>
> >>>>>>Adding lumped element loading coils, (75 uH, Q = 400) in each radial
> >>>>>>(antenna base end) drops the input impedance to 37 ohms, and
gain -6.4
> >>>>
> >>>>dBi.
> >>>>
> >>>>
> >>>>>>Don't know why this does not agree with Reg's program. Probably I
> >>>
> >>>made
> >>>
> >>>
> >>>>some
> >>>>
> >>>>
> >>>>>>fundamental error with the NEC model. Included the code below, so
you
> >>>>
> >>>>may
> >>>>
> >>>>
> >>>>>>see an error I missed.
> >>>>>>
> >>>>>>73,
> >>>>>>
> >>>>>>Frank
> >>>>>>
> >>>>>>CM 75 m Vertical 23 ft high
> >>>>>>CE
> >>>>>>GW 1 64 0 0 23 0 0 0.25 0.0026706
> >>>>>>GW 2 12 0 0 0.25 6 0 0.25 0.0026706
> >>>>>>GM 1 9 0 0 36 0 0 0 002.002

> >>>>>>GS 0 0 .3048
> >>>>>>GE 1
> >>>>>>GN 2 0 0 0 13.0000 0.0050
> >>>>>>EX 0 1 64 0 1.00000 0.00000
> >>>>>>LD 5 1 1 184 5.8001E7
> >>>>>>LD 4 1 33 33 4 1600
> >>>>>>LD 4 2 1 1 4 1750
> >>>>>>LD 4 3 1 1 4 1750
> >>>>>>LD 4 4 1 1 4 1750
> >>>>>>LD 4 5 1 1 4 1750
> >>>>>>LD 4 6 1 1 4 1750
> >>>>>>LD 4 7 1 1 4 1750
> >>>>>>LD 4 8 1 1 4 1750
> >>>>>>LD 4 9 1 1 4 1750
> >>>>>>LD 4 10 1 1 4 1750
> >>>>>>LD 4 11 1 1 4 1750
> >>>>>>FR 0 11 0 0 3.5 0.05
> >>>>>>RP 0 181 1 1000 -90 0 1.00000 1.00000
> >>>>>>EN
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>Frank,
> >>>>>>>
> >>>>>>>Good morning. Let me start at the beginning. I have a loaded
vertical
> >>>
> >>>on
> >>>
> >>>
> >>>>>>75
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>meters. The combination of the antenna and ground measure about 40
> >>>
> >>>Ohms
> >>>
> >>>
> >>>>at
> >>>>
> >>>>
> >>>>>>the
> >>>>>>
> >>>>>>
> >>>>>>

> >>>>>>>antenna. The models all show such an antenna over a perfect ground
> >>>>
> >>>>should
> >>>>
> >>>>
> >>>>>>have a
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>radiation resistance of between 3 and 4 Ohms. That says the antenna
> >>>>
> >>>>system
> >>>>
> >>>>
> >>>>>>is
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>less the 10% efficient.
> >>>>>>>
> >>>>>>>This then is a journey to reduce ground resistance. Attempts to add
> >>>>>>
> >>>>>>radials and
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>wire mesh to the ground have had very little if no effect. This
leads
> >>>
> >>>to
> >>>
> >>>
> >>>>>>Reg's
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>c_poise model. It predicts a coil in the range of 60 uH to 90 uH
tuned
> >>>>
> >>>>to
> >>>>
> >>>>
> >>>>>>a 2
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>meter by 18 mm 'wire' will have a total resistance in the 2 to 4
Ohms
> >>>>>>
> >>>>>>range.

> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>Together this should result is a 8 Ohm system. The ratio can be
> >>>
> >>>directly
> >>>
> >>>
> >>>>>>>inferred as an performance improvement of 5 to 1 or 7 db. This is
> >>>
> >>>worth
> >>>
> >>>
> >>>>>>some
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>effort.
> >>>>>>>
> >>>>>>>To answer your question the first step will be one coil and one
> >>>
> >>>radial.
> >>>
> >>>
> >>>>>>The
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>objective is the get the antenna system close to 10 Ohms. From
there I
> >>>>>>
> >>>>>>will
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>experiment with adding radials and coils. I am not sure what to
> >>>
> >>>expect.
> >>>
> >>>
> >>>>>>>Thanks - Dan
> >>>>>>>
> >>>>>>>
> >>>>>>>
> >>>>>>>
> >>>>>>>
> >>>>>>>Frank wrote:
> >>>>>>>
> >>>>>>>
> >>>>>>>

> >>>>>>>>Not sure I understand what is going on Dan. Are you planning on
> >>>>
> >>>>loading
> >>>>
> >>>>
> >>>>>>>>>each radial element?
> >>>>>>>>
> >>>>>>>>Frank
> >>>>>>>>
> >>>>>>>>
> >>>>>>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
> >>>>>>>>news:43F79966.3070004@comcast.net...
> >>>>>>>>
> >>>>>>>>
> >>>>>>>>
> >>>>>>>>
> >>>>>>>>>These results were from Reg's c_poise program. The band is 75
meters
> >>>>
> >>>>and
> >>>>
> >>>>
> >>>>>>>>>the coils were about 70 uH. The coils were a relatively large
> >>>>
> >>>>diameter,
> >>>>
> >>>>
> >>>>on
> >>>>
> >>>>
> >>>>
> >>>>>>>>>the order of a meter. The wire lengths were about 20 meters. By
> >>>>
> >>>>varying
> >>>>
> >>>>
> >>>>>>>>>the length the coil, the coil wire may be varies from 1mm to
12mm.
> >>>>>>>>>
> >>>>>>>>>Richard Clark wrote:
> >>>>>>>>>
> >>>>>>>>>
> >>>>>>>>>
> >>>>>>>>>
> >>>>>>>>>>On Sat, 18 Feb 2006 08:20:38 -0800, dansawyeror
> >>>>>>>>>><dansawyeror@comcast.net> wrote:
> >>>>>>>>>>
> >>>>>>>>>>
> >>>>>>>>>>
> >>>>>>>>>>

> >>>>>>>>>>
> >>>>>>>>>>
> >>>>>>>>>>>The devil is in the details. Modeling shows large coils with 1
mm
> >>>>
> >>>>wire
> >>>>
> >>>>
> >>>>>>>>>>>have a Q in the range of a few hundred. On the other hand a
coil
> >>>>
> >>>>with
> >>>>
> >>>>
> >>>>>>12
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>>>>mm tubing has a Q of about 2000. The R of the 1 mm coil is
about 6
> >>>>>>
> >>>>>>Ohms
> >>>>>>
> >>>>>>
> >>>>>>
> >>>>>>>>>>>while the 12 mm coil is on the order of 1 Ohm.
> >>>>>>>>>>
> >>>>>>>>>>>Given these model results it says there is a significant
> >>>
> >>>difference
> >>>
> >>>
> >>>>>>>>>>>between 1 mm and 12 mm coils.
> >>>>>>>>>>
> >>>>>>>>>>
> >>>>>>>>>>>Hi Dan,
> >>>>>>>>>>
> >>>>>>>>>>>In the details, indeed. What is the LENGTH of wire in this 6
Ohm
> >>>>>>>>>>>resistor? What is the LENGTH
> >>>>>>>>>>>of wire in this 1 Ohm resistor? How many turns are in these
"large
> >>>>>>>>>>>coils?" What is their diameter? What is their solenoid length?
> >>>>>>>>>>
> >>>>>>>>>>>Without these details, there is nothing said that is
significant.
> >>>>>>>>>>
> >>>>>>>>>>>73's
> >>>>>>>>>>>Richard Clark, KB7QHC
> >>>>>>>>>

> >>>>>>>>
> >>>>>>>>
> >

1641. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 17:18:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <p11Lf.51233$dW3.24862@newssvr21.news.prodigy.com>
Source record: 64302

Frank's Basement 2 wrote:
> I suspect that
> adding loading coils to radials is about the same as adding loading coils to
> any part of an antenna system. They do nothing to effect the radiation
> efficiency, only modify the input impedance.

Wherever did you get that idea? A dipole made out of
80m hamsticks is less than 1% efficient.
--
73, Cecil http://www.qsl.net/w5dxp

1642. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 17:53:27 UTC
From: diannamelrose@gmail.com
Message-ID: <1140630807.610938.116340@g14g2000cwa.googlegroups.com>
Source record: 64303

Lyle Blake, writing as dot wrote....Dot wrote:
> *I* did not crosspost anything inappropriate. These messages are pre-set to
> do that by Diane

<sigh>
I've *removed* the crossposts from this message.
Lyle's stock in trade is to initiate crossposts between groups as well
as to bring on Usenet fringe groups to disrupt any group he wants to
....

In the message below he was caught (we looked at the IP address in the
message) attempting to incite posters in a a white supremecist group to
make trouble in a newsgroup he disagreed with. He also forgot to
switch newsreaders or whatever so his his signature line remained as
well.

http://groups.google.com/group/alt.support.crossdressing/msg/90a062cef46a3bca

From: n...@n.n
Newsgroups: alt.flame.niggers
Subject: Wanna have some fun guys?
Message-ID: <8brl10p4fmqt712iusm8o5fuhkm35ge7qh@news1.on.sympatico.ca>
X-Newsreader: Forte Agent 1.8/32.548
X-No-Archive: yes
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit
Lines: 10
Date: Fri, 30 Jan 2004 18:50:57 -0500
NNTP-Posting-Host: 65.92.74.117
X-Complaints-To: abuse@sympatico.ca
X-Trace: news20.bellglobal.com 1075506660 65.92.74.117 (Fri, 30 Jan
2004
18:51:00 EST)
NNTP-Posting-Date: Fri, 30 Jan 2004 18:51:00 EST
Organization: Bell Sympatico

Hey guys,
Wanna have some nigger and fag bashing fun...

alt.support.srs is really a hotbed of transsexual bullshit right
now... ripe
for the picking. Go for it!

Laura

1643. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 18:11:46 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <CP1Lf.10613$_62.342@edtnps90>
Source record: 64304

"Cecil Moore" <mycall@arrl.net> wrote in message
news:p11Lf.51233$dW3.24862@newssvr21.news.prodigy.com...
> Frank's Basement 2 wrote:
>> I suspect that
>> adding loading coils to radials is about the same as adding loading coils
>> to
>> any part of an antenna system. They do nothing to effect the radiation
>> efficiency, only modify the input impedance.
>
> Wherever did you get that idea? A dipole made out of
> 80m hamsticks is less than 1% efficient.

Well, I guess I should have said: "... do nothing to effect the radiation
efficiency, except possibly reduce it".

Don't know anything about "Hamsticks", but they must have lousy loading
inductors!

Frank

1644. Re: Connectors

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 18:28:57 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dtiah9$e8v$2@engnntp2.cig.mot.com>
Source record: 64306

Yup! It's not a "might"... PL-259 (male) mates with the SO-239 (female)
73, K9DCI

"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:GFSKf.127$Uc2.111@fed1read04...
>
> "Dave Piggin" <d.piggin@zetnet.co.uk> wrote in message
> news:3130303038373835 43FB79CE79@zetnet.co.uk...
> > Hi to all.
> > > What's the correct designation for the Female ?
> >
> > "UHF" feed lines are usually and commonly terminated with a 'N' Type
> > plugs into a 'N' Type Socket.
> > "VHF" fed lines are usually and commonly terminated with PL259 plugs
> > into a SO259 Socket.
> > The indicator, PL represents a Plug, and SO represents a Socket.
> >
> > If you think of it in a bodily manner, relate to it as Male= PL and
> > Female= So, and so a [male enters the female]
> > Take a look at any "UHF" transceiver and you will find that it's a 'N'
> > Type socket on the rear entry of the rig, a far superior plug to the
> > PL253/8/9 Etc Etc Series.
> >
> > Dual band transceivers are terminated at the rear by a PL259 socket.
> > Hope this helps. Cheers Dave.
> >
> > --
> > Amateur Radio Call Sign M1BTI, Located in Manchester England.
> > Locator square IO83TK
> > Chairman Of Trafford Radio Club. Club Call Signs G0TRG & M1BBP
> > Located at Umist, University Of Manchester Institute For Science And
> > Technology
> > Share What You Know, Learn What You Dont.
>
> Might not the socket connector be called SO-239? I did a quick "Google"
> before sending this.
>
>

1645. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 18:40:40 UTC
From: Brian Kelly <kelly@dvol.com>
Message-ID: <1140633640.826547.318080@g14g2000cwa.googlegroups.com>
Source record: 64305

david@drumheller.org wrote:
> I'd like to design and build a new 2-meter Yagi antenna, and would
> like to construct it using aluminum tubing and rod. Drawn tubing--the
> stuff with an axial seam--would suffice.
>
> Anyone know of a good source for this stuff in Washington DC or nearby
> areas in Maryland? I've tried Home Depot and the like, but the stock
> available in these places is incomplete and expensive.

Home Depot aluminum is very soft and weak and is not a very good material for antenna-building purposes. Use high-strength aluminum alloys like 6061-T6 or 6063-T6. McMaster-Carr is a good source for high-quality aluminum but they don't carry much of a selection of sizes. For ham antenna purposes your best bet is probably Texas Towers.

http://www.texastowers.com/aluminum.htm

Another route which I use is have a local friendly industrial machine shop or sheet metal shop on tap which will buy whatever you need from their established industrial metal supply houses and reimburse the shop for their expenses on your behalf. Usually there are no shipping costs involved and you can get full lengths of tubing vs. the cut 6' and 8' limits offered by TT and McMaster. Aluminum tubing comes from the mills in 12' and 21' lengths and can be simply cartopped home. The trick is to surf the Yellow Pages for a local indusdtrial shop which will work with you.

Or in some cases a private individual can buy metals directly from local mill supply houses which sell to the industrial shops. This is a workable approach but only in heavily-industrialized regions where a metals distributor is within a reasonable driving range. The DC area shuld "qualify". Back to the Yellow Pages under "metals" . . .

> -Dave, K3WQ

w3rv

1646. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 19:37:07 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <n7idnenb3-T_IGHenZ2dnUVZ_sSdnZ2d@comcast.com>
Source record: 64307

5W will go to the moon!!!

Bill Turner wrote:

> ORIGINAL MESSAGE:
>
> Sal M. Onella wrote:
>
>
>>First, 5W will likely go out 5 miles.
>
>
>
> ~~~~~~
> Better than that, 5w will go to the horizon and slightly beyond. On HF,
> I have worked China with 5 watts.
>
> 73, Bill W6WRT

1647. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 20:33:25 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <1tqdnf4fjt4WV2He4p2dnA@web-ster.com>
Source record: 64308

Dot wrote:
> On Sun, 19 Feb 2006 20:50:19 -0800, "Sal M. Onella"
> <salmonella@food.poisoning.org> wrote:
>
>
>><diannamelrose@gmail.com> wrote in message
>>news:1140404823.199601.294020@g43g2000cwa.googlegroups.com...
>
>
>>Dot will need to make postings a lot nastier to be considered by most to be
>>"a truly viscious [sic] Usenet kook." HIs post seemed ordinary enough.
>
>
> I see my stalker made it here, with the usual lies and hatred, in short
> order. I am here to talk about antennas... she's here to try to turn you
> all against me, as she's done a hundred times before.
>
> If any of you are uncomfortable with my continued presence just say so and I
> shall head back off to places nether to mess with radios, talk to some
> people and otherwise enjoy the hobby...
>
>
>
>>However, will watch for incipient flame wars and take kill-file action, as
>>needed.
>
>
> Not to worry... My rules are real simple.
>
> 1) You play fair and I play fair.
> 2) I never back down from bullies.
>
> That is... I don't start fights but I do tend to finish them.
>
>
Please don't feed the troll.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

Posting from Google? See http://cfaj.freeshell.org/google/

1648. Re: Fiberglass roof on FJ-40

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 23:25:59 UTC
From: ootman1 <ootman1@earthlink.net>
Message-ID: <bq6Lf.2299$S25.1444@newsread1.news.atl.earthlink.net>
Source record: 64309

How about a ground plane kit for vehicles? It consists of a rool of
aliminum foil tape about 4 inches wide. Does the vehicle have a head liner?
If not make a big "X" with the stuhh and mount the antenna in the middle.You
can get one of these kits at buisness band radio repair shops

1649. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-22 23:39:17 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <FC6Lf.39$Ui.9@edtnps84>
Source record: 64310

>> Wherever did you get that idea? A dipole made out of
>> 80m hamsticks is less than 1% efficient.
>
> Well, I guess I should have said: "... do nothing to effect the radiation
> efficiency, except possibly reduce it".
>
> Don't know anything about "Hamsticks", but they must have lousy loading
> inductors!
>
> Frank

To be exact; a 16 ft dipole would need to be loaded with inductors of Q = 78
for a 0.99% efficiency. The gain is therefore -18.3 dBi.

Frank

1650. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 00:55:25 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1K7Lf.15962$2O6.11668@newssvr12.news.prodigy.com>
Source record: 64311

Frank wrote:
> To be exact; a 16 ft dipole would need to be loaded with inductors of Q = 78
> for a 0.99% efficiency. The gain is therefore -18.3 dBi.

Sounds about right. Hamsticks are about 12 dB down
from a good screwdriver on 75m.
--
73, Cecil http://www.qsl.net/w5dxp

1651. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 01:44:05 UTC
From: yzordderrex@verizon.net
Message-ID: <1140659045.271910.271190@g47g2000cwa.googlegroups.com>
Source record: 64312

Have you experience running 100w into one of these transformers
yourself? I kinda doubt they would take any watts.

If I understand you correctly you are talking about the little unit
that connects the cable to the old 300ohm input of 1970s type tv.
These units have very small toroids, only maybe a quarter inch in
diameter, that are designed for microvolts of excitation at the bottom
end of TV band - which is somewhere near say 50Mhz. They will not
handle any magnitizing flux and I would bet a watt at 20m would
overheat it.

regards,
Bob
N9NEO

1652. Re: Usenet Kook Alert .... Lyle Blake

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 03:48:01 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <43fd3072$0$7324$39cecf19@news.twtelecom.net>
Source record: 64313
Cross-posted to: rec.radio.amateur.antenna,uk.radio.amateur

If you don't like top posting, then why do you do it?

Personally I think it's much more efficient, You don't have to scroll
to the bottom because morons never snip anymore.

Ah, the young that have infiltrated the net since we started it all
decades ago....

Tom
K0TAR

DieSea wrote:

> RATHER A GOOD IDEA
> YOU CAN PUT ME IN YOUR KILL FILE AS WELL
>
> Not only for SHOUTING but for TOP POSTING AS WELL
>
> Bye Bye
>
> DieSea

<SNIP!!!>

1653. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 04:50:27 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <nabLf.178$M52.141@edtnps89>
Source record: 64314

"Cecil Moore" <mycall@arrl.net> wrote in message
news:1K7Lf.15962$2O6.11668@newssvr12.news.prodigy.com...
> Frank wrote:
>> To be exact; a 16 ft dipole would need to be loaded with inductors of Q =
>> 78 for a 0.99% efficiency. The gain is therefore -18.3 dBi.
>
> Sounds about right. Hamsticks are about 12 dB down
> from a good screwdriver on 75m.
> --
> 73, Cecil http://www.qsl.net/w5dxp

I wonder what the efficiency of a Miracle Whip is?

73, Frank

1654. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 04:55:48 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <MebLf.968$Uc2.471@fed1read04>
Source record: 64315

"Lee" <lo012a4519@blueyonder.co.uk> wrote in message
news:rXUKf.31812$Q22.24541@fe1.news.blueyonder.co.uk...
>
> "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> news:RUSKf.130$Uc2.57@fed1read04...
> >
> > <someone@somedomain.com.invalid> wrote in message
> > news:IyQKf.18144$Ug4.11471@dukeread12...
> > >
> > >
> > >
> > http://64.71.184.220/eng/gpspatch.txt
> >
> > http://www.arrl.org/tis/info/pdf/0210036.pdf
> >
> > http://vancouver-webpages.com/peter/gpspatch.gif
>
> Any more designs to suit a Garmin 310 ???
>
> Lee .....G6ZSG.....
>
>

Lee,

These are free-space antennas, intended for fitting with a length of coax terminated in the particular connector that mates with the connector on your GPS rcvr. My Garmin GPS-III takes a BNC and I have my patch antenna mounted on my van's luggage rack; Eight feet of coax brings the signal inside.

Not familiar with the 310 -- are you looking for an add-on antenna that physically mounts to your 310? ... or does the 310 require a special coupling technique (non-connector)?

John
KD6VKW

1655. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 05:11:54 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <StbLf.974$Uc2.866@fed1read04>
Source record: 64316

"Amos Keag" <A.K01@comcast.net> wrote in message
news:n7idnenb3-T_IGHenZ2dnUVZ_sSdnZ2d@comcast.com...
> 5W will go to the moon!!!
>
> Bill Turner wrote:
>
> > ORIGINAL MESSAGE:
> >
> > Sal M. Onella wrote:
> >
> >
> >>First, 5W will likely go out 5 miles.
> >
> >
> >
> > ~~~~~~
> > Better than that, 5w will go to the horizon and slightly beyond. On HF,
> > I have worked China with 5 watts.
> >
> > 73, Bill W6WRT
>

Yeah, I just wanted to put some "overkill perspective" on his 5-watter.
Some folks equate RF power with an equivalent light bulb and it's just
not a good comparison.

I regularly work to near the horizon on a watt or two (VHF). The QRP
record I've heard is 1/40 W from North America to Australia (CW).

73,
John, KD6VKW

1656. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 05:29:02 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jkhqv1l99bd3p2eo2gpm851hhat5sbu28h@4ax.com>
Source record: 64317

On Wed, 22 Feb 2006 21:11:54 -0800, "Sal M. Onella"
<salmonella@food.poisoning.org> wrote:

>Yeah, I just wanted to put some "overkill perspective" on his 5-watter.
>Some folks equate RF power with an equivalent light bulb and it's just
>not a good comparison.

Let him go... the scenario probably goes like this:

He runs 5W out on the farm, it can be heard in town, someone passes
the word around about the cool music on pirate radio, the operators of
the commercial stations hear about it and feel agrieved (loss of
audience, ratings, revenue), the regulator is called in.

Breaches of Radiocommunications Act and Copyright Act to name just a
couple.

--

1657. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 05:37:01 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <pRbLf.976$Uc2.143@fed1read04>
Source record: 64318

"Owen Duffy" <owen@no.where> wrote in message
news:jkhqv1l99bd3p2eo2gpm851hhat5sbu28h@4ax.com...
> On Wed, 22 Feb 2006 21:11:54 -0800, "Sal M. Onella"
> <salmonella@food.poisoning.org> wrote:
>
>
> >Yeah, I just wanted to put some "overkill perspective" on his 5-watter.
> >Some folks equate RF power with an equivalent light bulb and it's just
> >not a good comparison.
>
> Let him go... the scenario probably goes like this:
>
> He runs 5W out on the farm, it can be heard in town, someone passes
> the word around about the cool music on pirate radio, the operators of
> the commercial stations hear about it and feel agrieved (loss of
> audience, ratings, revenue), the regulator is called in.
>
> Breaches of Radiocommunications Act and Copyright Act to name just a
> couple.
>
> --

Yup, could be.

1658. nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 05:38:23 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FD4A4F.9010209@comcast.net>
Source record: 64319

All,

I have been experimenting with various loaded antennas to use in my relatively limited space. For this I assumed the two arms of a dipole must be identical to support resonance, this assumption has not been supported by modeling.

Actual model runs show that if the two arms of a dipole are close then there is sufficient interaction that they will combine to form a single resonance. The model below shows a simple example of this. The loads and length of the arms are not equal, however nec predicts a single resonance at about 3.5 MHz. Changes of 10 to 20 percent around resonance seem to create one resonance.

Is there an explanation for this?

Thanks - Dan kb0qil

```
CM 75 m loaded dipole
CM copper conductivity
CE
GW 1 31 4 0 8 0 0 8 .001
GW 2 11 0 0 8 -6 0 8 .001
GE 0
LD 4 1 16 16 3 2500
LD 4 2 5 5 3 2000
EX 0 1 30 0 1 0
GN 2 0 0 0 13 5.e-3
FR 0 1 0 0 3.543 0
EN
```

Frank wrote:
> "Cecil Moore" <mycall@arrl.net> wrote in message
> news:1K7Lf.15962$2O6.11668@newssvr12.news.prodigy.com...
>
>>Frank wrote:
>>
>>>To be exact; a 16 ft dipole would need to be loaded with inductors of Q =
>>>78 for a 0.99% efficiency. The gain is therefore -18.3 dBi.
>>
>>Sounds about right. Hamsticks are about 12 dB down
>>from a good screwdriver on 75m.
>>--
>>73, Cecil http://www.qsl.net/w5dxp
>
>
> I wonder what the efficiency of a Miracle Whip is?
>

> 73, Frank
>
>

1659. Re: Connectors

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 07:19:09 UTC
From: Dave Piggin <d.piggin@zetnet.co.uk>
Message-ID: <3130303038373837383543FD61ED21@zetnet.co.uk>
Source record: 64322

Yup! It's not a "might"... PL-259 (male) mates with the SO-239 (female)
73, K9DCI
Dyslexic fingers!!!! You are correct Sir and I stand corrected. d;-((
Just hope it explained it in plain English to the originator of the
thread. Dave

--
Amateur Radio Call Sign M1BTI, Located in Manchester England.
Locator square IO83TK
Chairman Of Trafford Radio Club. Club Call Signs G0TRG & M1BBP
Located at Umist, University Of Manchester Institute For Science And
Technology
Share What You Know, Learn What You Dont.

1660. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 12:27:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <oShLf.11935$rL5.11607@newssvr27.news.prodigy.net>
Source record: 64320

dansawyeror wrote:
> I have been experimenting with various loaded antennas to use in my
> relatively limited space. For this I assumed the two arms of a dipole
> must be identical to support resonance, this assumption has not been
> supported by modeling. Is there an explanation for this?

An electrical 1/2 wavelength conductor is resonant
no matter where you feed it. Even if you don't feed
it anywhere, it is still resonant.
--
73, Cecil http://www.qsl.net/w5dxp

1661. Big push for the government to sell more airways...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 15:11:56 UTC
From: Alan <alannc44@{nospam}ix.netcom.com>
Message-ID: <0hkLf.32135$no3.215@tornado.southeast.rr.com>
Source record: 64321

At least the opinions of the techie CEO's aren't siding with BPL proponents....http://today.reuters.com/news/newsArticle.aspx?type=technologyNews&storyID=2006-02-23T023921Z_01_N22224784_RTRUKOC_0_US-TELECOMS-WIRELESS-CEOS.xml

Alan

--
Windsurfing Club: http://www.ibscc.org

1662. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 15:28:00 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <4wkLf.4207$vC4.1279@clgrps12>
Source record: 64323

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43FD4A4F.9010209@comcast.net...
> All,
>
> I have been experimenting with various loaded antennas to use in my
> relatively limited space. For this I assumed the two arms of a dipole must
> be identical to support resonance, this assumption has not been supported
> by modeling.
>
> Actual model runs show that if the two arms of a dipole are close then
> there is sufficient interaction that they will combine to form a single
> resonance. The model below shows a simple example of this. The loads and
> length of the arms are not equal, however nec predicts a single resonance
> at about 3.5 MHz. Changes of 10 to 20 percent around resonance seem to
> create one resonance.
>
> Is there an explanation for this?
>
> Thanks - Dan kb0qil

No matter what Dan, you should see only one resonance at the overall length
of a half wave. Not that resonance has any bearing on antenna efficiency.

Also; your NEC model has uneven segmentation, which does produce significant
errors. Interesting to note that your antenna is also resonant at 7 MHz.

73,

Frank

1663. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 20:59:36 UTC
From: richardharrison@webtv.net
Message-ID: <25869-43FE2238-253@storefull-3253.bay.webtv.net>
Source record: 64324

Dot wrote:
"Low impedance resonances occur every odd multiple (1,3,5, etc.) of a quarter wavelength."

As I read from Arnold B. Bailey, he takes the opposite view. I think a 1/4-wavelength folded dipole shares some characteristics with a short-circuited 1/4-wavelength stub; short on one end, high impedance on the other end. Therefore, I agree with Bailey.

Arnold B. Bailey shows interest in folded dipoles in "TV ans Other Receiving Antennas", He catalogs the first through the eighth resonances on page 410. The odd order (1,3,5, etc.) resonances present high drivepoint impedances. Even order resonances present low drivepoint impedances.

Page 509 is Bailey`s catalog page for the 1/4-wave folded dipole. With a 1/4-in dia rod spaced at 1 inch between sides at 200 MHz, the antenna has a 6000-ohm drivepoint. Cecil says this is too good to be true because a 1/4-wave-matching-section of 600-ohm line would match the 1/4-wave dipole to 50 ohms.

Page 510 is Bailey`s catalog page for the 1/2-wave folded dipole. It has 0 dBd gain and its pattern is the same as a straight dipole. Same as the 1/4-wave folded dipole too for practical purposes.

The 1/4-wave folded dipole has only a 1/2 dB less gain than the 1/2-wave folded dipole, but its resonance is sharper. It has only 5% bandwidth versus 45% for the 1/2-wave folded dipole. This can be an advantage if it prevents receiver overload when using the 1/4-wave folded dipole.

Best regards, Richard Harrison, KB5WZI

1664. Re: 300 ohm folded dipole from ARRL Handbook, early 1990's

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-23 21:05:20 UTC
From: Phil <phil@nospampse.be>
Message-ID: <kspLf.275459$np3.8958204@phobos.telenet-ops.be>
Source record: 64325

<yzordderrex@verizon.net> wrote in message
news:1140659045.271910.271190@g47g2000cwa.googlegroups.com...
> Have you experience running 100w into one of these transformers
> yourself? I kinda doubt they would take any watts.
>
> If I understand you correctly you are talking about the little unit
> that connects the cable to the old 300ohm input of 1970s type tv.
> These units have very small toroids, only maybe a quarter inch in
> diameter, that are designed for microvolts of excitation at the bottom
> end of TV band - which is somewhere near say 50Mhz. They will not
> handle any magnitizing flux and I would bet a watt at 20m would
> overheat it.
>
> regards,
> Bob
> N9NEO
>
Those VHF 75/300 ohms transformers where designed for the 48 to 300 MHz VHF TV-segment. The neosid core is not that small: it just covers my thumbnail. It indeed can handle 100 watts on 14 MHz. I tested it thoroughly: a friend had taken his transceiver to Costa Rica where he was visiting family and I wanted to raise an antenna very quickly to stay in touch with him. I suspended a folded dipole under the roof of my house and used the described VHF bal/un to feed it. We had (almost) daily skeds on 14 MHz. The "almost" was not due to propagation but had more to do with the fact that the electricity plant was only up 3 or 4 days a week in Costa Rica at that time.

Later I used the same bal/un with a folded dipole for the 20 m band made with twin lead.

I never used it on lower frequencies. I am sure that it would get pretty hot with 100 watts on 80 m.

Kind regards,

Phil

1665. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 01:14:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Q5tLf.39467$H71.19550@newssvr13.news.prodigy.com>
Source record: 64126

Dot wrote:
> I wasn't talking about a "1/4 wave folded dipole" ...
> I was talking about a piece of wire of a given length.

A 1/4 wavelength piece of wire in free space is resonant
at half that wavelength. :-)
--
73, Cecil http://www.qsl.net/w5dxp

1666. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 05:40:31 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FE9C4F.3050104@comcast.net>
Source record: 64127

"a 1/2 wave segment is resonant no matter where you feed it." That allows for a large single coil to 'tune' one arm of an antenna and for the other to be adjustable.

Simulation predicts the impedance will change when it is not feed at the center, it appears to go up as the feed point is moved.

I will play with the segmentation and see what happens.

Thanks - Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43FD4A4F.9010209@comcast.net...
>
>>All,
>>
>>I have been experimenting with various loaded antennas to use in my
>>relatively limited space. For this I assumed the two arms of a dipole must
>>be identical to support resonance, this assumption has not been supported
>>by modeling.
>>
>>Actual model runs show that if the two arms of a dipole are close then
>>there is sufficient interaction that they will combine to form a single
>>resonance. The model below shows a simple example of this. The loads and
>>length of the arms are not equal, however nec predicts a single resonance
>>at about 3.5 MHz. Changes of 10 to 20 percent around resonance seem to
>>create one resonance.
>>
>>Is there an explanation for this?
>>
>>Thanks - Dan kb0qil
>
>
> No matter what Dan, you should see only one resonance at the overall length
> of a half wave. Not that resonance has any bearing on antenna efficiency.
>
> Also; your NEC model has uneven segmentation, which does produce significant
> errors. Interesting to note that your antenna is also resonant at 7 MHz.
>
> 73,
>
> Frank
>
>

1667. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 06:36:28 UTC
From: chuck <chuckjones@cj.org>
Message-ID: <43FEA96C.8C680EBE@cj.org>
Source record: 64128

hi,

I have also used this company,
martin is good to deal with,
he cuts the tubing any length
you like, as long as it is
6 ft or less, it can ship
priority mail.
he has all the good stuff,
6061 6063 nice.

chuck

Gloria wrote:

> Hi,
>
> I know you asked for a local source,
> I have used this guy on ebay stores,
> his pricing is very good and he ships
> us priority mail with tracking.
>
> http://stores.ebay.com/TRINITY-METAL-SALES_W0QQsspagenameZFAVQ3aFQ3aSLLRQQtZkm

1668. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 06:39:51 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jl9tv1temv7nra84ku87t7tlvimlq08oeb@4ax.com>
Source record: 64129

On Thu, 23 Feb 2006 21:40:31 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>"a 1/2 wave segment is resonant no matter where you feed it."

Hi Dan,

I don't know where to start on that one. 1/2 wave "segment?" And
then to partition (into what? it is already describe as A segment) for
a feed - that is resonant irrespective of where it is fed? Any wire
is resonant, further elaboration does nothing to change that one
obscure characteristic - and in fact, any wire is multi-resonant.

>That allows for a large single coil to 'tune' one arm of an antenna
>and for the other to be adjustable.

Then it ceases to be "a 1/2 wave segment" unless the frequency is
adjusting with the length - this would seem to be obvious, but what
end is served in saying it? What distinguishes an arm from a segment?

>Simulation predicts the impedance will change when it is not feed at the center,

Simulation should.

> it appears to go up as the feed point is moved.

In distinct contradiction to most OCF dipoles - odd. In fact one of
the hallmarks of the OCF is being resonant in many ham bands where the
standard dipole does not.

73's
Richard Clark, KB7QHC

1669. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 08:45:30 UTC
From: Lee <lo012a4519@blueyonder.co.uk>
Message-ID: <KlzLf.48616$Q22.34001@fe1.news.blueyonder.co.uk>
Source record: 64130

```
"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:MebLf.968$Uc2.471@fed1read04...
>
> "Lee" <lo012a4519@blueyonder.co.uk> wrote in message
> news:rXUKf.31812$Q22.24541@fe1.news.blueyonder.co.uk...
> >
> > "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> > news:RUSKf.130$Uc2.57@fed1read04...
> > >
> > > <someone@somedomain.com.invalid> wrote in message
> > > news:IyQKf.18144$Ug4.11471@dukeread12...
> > > > >
> > > > >
> > > > >
> > > http://64.71.184.220/eng/gpspatch.txt
> > > >
> > > http://www.arrl.org/tis/info/pdf/0210036.pdf
> > > >
> > > http://vancouver-webpages.com/peter/gpspatch.gif
> > >
> > Any more designs to suit a Garmin 310 ???
> >
> > Lee .....G6ZSG.....
> >
> >
>
> Lee,
>
> These are free-space antennas, intended for fitting with a length of coax
> terminated in the particular connector that mates with the connector on
your
> GPS rcvr. My Garmin GPS-III takes a BNC and I have my patch antenna
mounted
> on my van's luggage rack; Eight feet of coax brings the signal inside.

Not too sure what i want, i`m a bit of a newb to GPS....just bought it!!!...

> Not familiar with the 310 -- are you looking for an add-on antenna that
> physically mounts to your 310? ... or does the 310 require a special
> coupling technique (non-connector)?

Same as the 320,330 and 340 series

Lee.......G6ZSG.......
```

1670. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 11:47:19 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <sLudnZYsU6XZb2PenZ2dnUVZ_tudnZ2d@comcast.com>
Source record: 64131

dansawyeror wrote:

> "a 1/2 wave segment is resonant no matter where you feed it." That
> allows for a large single coil to 'tune' one arm of an antenna and for
> the other to be adjustable.
>
> Simulation predicts the impedance will change when it is not feed at the
> center, it appears to go up as the feed point is moved.
>
> I will play with the segmentation and see what happens.

Absolutely true! But, what does feedpoint impedance have to do with
resonance? ... NUTTIN!

1671. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 13:44:56 UTC
From: richardharrison@webtv.net
Message-ID: <15631-43FF0DD8-401@storefull-3255.bay.webtv.net>
Source record: 64132

Amos Keag wrote:
"But, what does feedpoint impedance have to do with resonance?"

Imagine a whip worked against ground. It is resonant at 1/4-wavelength where it presents a low impedance. It is resonant again at 1/2-wavelength where it presents a high impedance.

Best regards, Richard Harrison, KB5WZI

1672. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 13:57:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <shELf.16173$2O6.12383@newssvr12.news.prodigy.com>
Source record: 64133

dansawyeror wrote:
> Simulation predicts the impedance will change when it is not feed at the
> center, it appears to go up as the feed point is moved.

An off-center-fed dipole will match 300 ohm twin lead if
fed at the correct point. This is covered in my 1957
ARRL Handbook.
--
73, Cecil http://www.qsl.net/w5dxp

1673. Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 14:00:11 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-D7C28D.08000424022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64134

How does one check the balance between two parallel feed wires into a doublet antenna. Neon bulbs or some sort of meter gizmo?

tnx

d

1674. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 14:39:01 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <9UELf.2354$M52.335@edtnps89>
Source record: 64135

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43FE9C4F.3050104@comcast.net...
> "a 1/2 wave segment is resonant no matter where you feed it." That allows
> for a large single coil to 'tune' one arm of an antenna and for the other
> to be adjustable.
>
> Simulation predicts the impedance will change when it is not feed at the
> center, it appears to go up as the feed point is moved.
>
> I will play with the segmentation and see what happens.
>
> Thanks - Dan

Dan,

As for NEC segmentation. "0.05 wavelengths per segment is preferred, but can be as long as 0.1 wavelengths. Segments shorter than 0.001 wavelengths should be avoided". From L. B. Cebik's "Basic Antenna Modeling: .....". In most cases all segments within a structure should have equal length segmentation. Where antenna models become very large, with 1000 segments or more, there are work-arounds which allow for uneven segmentation without introducing errors. The problem with large numbers of segments is that processor time increases dramatically.

I see nothing wrong with using one loading coil in a dipole. The effect is simply the same as an off-center-fed dipole.

73,

Frank

1675. 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 16:14:12 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <ohGLf.796098$_o.157184@attbi_s71>
Source record: 64136

This winter I have been working on the design and construction of a compact loop for 80 meters. The loop will be constructed from 72 ft of 3/4 in copper pipe and will be in the shape of an octagon. The plane of the loop will be vertical, and the loop will be remotely tuned by a vacuum variable capacitor coupled to a geared stepper motor.

I have just finished constructing and testing the driver for the stepper motor. See
http://tinyurl.com/bwobb for pictures and some information about the system. Constructive comments will be appreciated.

John, N9JG

1676. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 16:24:10 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vucpb76cj4206@corp.supernews.com>
Source record: 64137

That topic was discussed in some detail on this newsgroup just a few
weeks ago. Do a search in groups.google.com of this newsgroup for the
topic "unbalance indicator".

Roy Lewallen, W7EL

Big Endian wrote:
> How does one check the balance between two parallel feed wires into a
> doublet antenna. Neon bulbs or some sort of meter gizmo?
>
> tnx
>
> d

1677. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 16:38:01 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtncp8$rg6$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64138

> How does one check the balance between two parallel feed wires into
a
> doublet antenna.

==========

Just go out into the garden and look up at the antenna.

If each half of the doublet is of about the same length, and both
halves are about the same height above ground, then the parallel pair
of wires are balanced.

Reg.

1678. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 16:48:22 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <x7-dnVPSDdBJpWLeRVn-qQ@comcast.com>
Source record: 64139

Richard Harrison wrote:

> Amos Keag wrote:
> "But, what does feedpoint impedance have to do with resonance?"
>
> Imagine a whip worked against ground. It is resonant at 1/4-wavelength
> where it presents a low impedance. It is resonant again at
> 1/2-wavelength where it presents a high impedance.
>
> Best regards, Richard Harrison, KB5WZI
>

Resonance has NOTHING to do with impedance. Resonance is resonance; it has a harmonic response.

Feed point impedance is the load presented to a transmission line when you want to make a wire, any wire, resonant or non resonant, into an antenna. I can feed any antenna with a single wire against ground, I can feed the same antenna with 50 ohm coax, 70 ohm coax, 90 ohm coax, 72 ohm balance line, 300 ohm balanced line 450 ohm balanced line 600 ohm balanced line. None of these transmission lines changes to resonance or non resonance of the antenna.

Resonance is determined by the physical characteristics of the antenna. Generally these include the antenna length and the length to diameter ratio. PERIOD.

1679. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 16:49:35 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <x7-dnVLSDdCBpGLeRVn-qQ@comcast.com>
Source record: 64140

Big Endian wrote:

> How does one check the balance between two parallel feed wires into a
> doublet antenna. Neon bulbs or some sort of meter gizmo?
>
> tnx
>
> d

YEP!!

An RF Ammeter will do just fine

1680. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 17:32:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vugpalqdcltd4@corp.supernews.com>
Source record: 64141

Amos Keag wrote:
>
> YEP!!
>
> An RF Ammeter will do just fine

Balance requires that the currents in the two wires be equal in magnitude and opposite in phase (or direction). How do you connect an RF ammeter to determine this?

Roy Lewallen, W7EL

1681. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 17:41:23 UTC
From: chuck <nospam@nospam.net>
Message-ID: <7zHLf.2661$F56.1750@newsread3.news.atl.earthlink.net>
Source record: 64142

Wouldn't the clamp-on type ammeter as discussed previously provide that
information (provided a section of twin lead small enough to fit the
clamp were used?

Chuck

Roy Lewallen wrote:
> Amos Keag wrote:
>
>>
>> YEP!!
>>
>> An RF Ammeter will do just fine
>
>
> Balance requires that the currents in the two wires be equal in
> magnitude and opposite in phase (or direction). How do you connect an RF
> ammeter to determine this?
>
> Roy Lewallen, W7EL

1682. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 18:11:03 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtni7n$19d$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64143

"Roy Lewallen" wrote
> Balance requires that the currents in the two wires be equal in
> magnitude and opposite in phase (or direction). How do you connect
an RF
> ammeter to determine this?
==========

It's unbelievably easy Roy, you just pass both wires together through
a clamp-on ammeter.

Reg.

1683. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 18:22:22 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <e9KgTpce70$DFAeN@ifwtech.co.uk>
Source record: 64144

Reg Edwards wrote:
>> How does one check the balance between two parallel feed wires into
>a
>> doublet antenna.
>
>===
>
>Just go out into the garden and look up at the antenna.
>
>If each half of the doublet is of about the same length, and both
>halves are about the same height above ground, then the parallel pair
>of wires are balanced.

In your opinion.

But the original questioner wants to measure what's *really* happening.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1684. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 18:36:07 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <gthuv1tousm3f24as9r2pbvmid2stgqsrj@4ax.com>
Source record: 64145

On Fri, 24 Feb 2006 11:48:22 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>Resonance has NOTHING to do with impedance. Resonance is resonance; it
>has a harmonic response.

Hi Amos,

Resonance is the absence of reactance, or more properly its term is 0.
As reactance is fully part of the specification to impedance,
resonance has a very unique relation: r ï¿½j0.

You can take a dipole that exhibits this unique characteristic at
regular intervals of frequency - notably at harmonics (in a perfect
world, not so necessarily in life). You can also take that same
length of wire and shift the feedpoint such that its resonance (still
that same characteristic loss of X with some remaining R) changes in
frequency - as does the spectrum of other resonances which are
sometimes no longer related by harmonics.

Taking as an example, an 11 segment 3mm wire 37.9M long in free space
and feed it in the conventional way (in the middle) and its resonances
may be observed at:
3.8 MHzï¿½
7.95 MHzï¿½
11.75 MHzï¿½
16.25 MHzï¿½
19.65 MHzï¿½
24.65 MHzï¿½
27.55 MHzï¿½

Or feed it at 68% along its length (or segment 8) and observe:
3.8 MHzï¿½ (with a Higher R as I had incorrectly argued with Dan)
5.65 MHzï¿½
7.85 MHzï¿½
12.45 MHzï¿½
15.65 MHzï¿½
17.55 MHzï¿½
19.65 MHzï¿½
25.55 MHzï¿½
27.55 MHzï¿½

where strictly speaking MHzï¿½ is resonance and MHzï¿½ is anti-resonance

A curious property has emerged, we now have 9 resonances (speaking
largely) where formerly we had 7 in exactly the same span of frequency
for the same piece of wire. Further, we also have the anti-resonance

of the standard dipole at 8 MHz replaced by a resonance in the OCF dipole.

To roll back the calendar 10 years or so, this is also the hallmark of fractal antennas in that they exhibit more resonances than found in "conventional" dipoles.

There are certain lengths of wire, with certain offsets of feed that offer fairly good overlaps with Ham Bands that are not otherwise found in common dipoles. I am at a loss to specify those "certain" characteristics, and it is arguable that feeding an offset dipole can be successfully achieved without some effort in isolating (choking) the feedpoint from the driveline - a distasteful reality conveniently discarded in modeling.

73's
Richard Clark, KB7QHC

1685. FS: Coax Connectors, Adapters & Cable assemblies @ great prices

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:25:00 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <y3JLf.4513$Sp2.1697@fed1read02>
Source record: 64146
Cross-posted to: alt.ham-radio.vhf-uhf,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors

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1686. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:28:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <F7JLf.39567$H71.37867@newssvr13.news.prodigy.com>
Source record: 64147

Amos Keag wrote:
> But, what does feedpoint impedance have to do with
> resonance?

On a standing wave antenna, like a center-fed dipole, the feedpoint impedance is (Vfor+Vref)/(Ifor+Iref) where Vfor is forward voltage, Vref is reflected voltage, etc. and the plus sign denotes superposition, i.e. phasor addition.

On a wire dipole, the resonant feedpoint impedance will occur only when all the phases line up, i.e. If Vfor is at zero degrees, Vref must be at 180 degrees, Ifor must be at zero degrees, and Iref must be at zero degrees. That way, we get minimum voltage divided by maximum current with a resultant phase angle of zero degrees. Eureka! The dipole is resonant because the feedpoint impedance is purely resistive.
--
73, Cecil http://www.qsl.net/w5dxp

1687. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:37:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <UfJLf.39570$H71.4889@newssvr13.news.prodigy.com>
Source record: 64148

Big Endian wrote:
> How does one check the balance between two parallel feed wires into a
> doublet antenna. Neon bulbs or some sort of meter gizmo?

The easiest way is to use a large sampling toroid such
that the balanced line can be fed through the toroid.
A ten-turn sampling coil will indicate any unbalance.
Note that the balanced line needs to be centered with
respect to the toroid and needs to be moved along the
feedline to obtain maximum accuracy. Ideally, the toroid
needs to be located at a standing wave current maximum
point. Since my choke-balun is always located at a current
maximum point, I can easily monitor my feedline balance.

You can also use smaller toroids on each line and then
superpose the two readings. But the two toroids need to
be identical which is no small requirement.
--
73, Cecil http://www.qsl.net/w5dxp

1688. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:39:31 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ThJLf.39573$H71.6061@newssvr13.news.prodigy.com>
Source record: 64149

Reg Edwards wrote:
> If each half of the doublet is of about the same length, and both
> halves are about the same height above ground, then the parallel pair
> of wires are balanced.

What if one is broken and you don't know it?
--
73, Cecil http://www.qsl.net/w5dxp

1689. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:45:28 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jaouv1p9lka4bme13ssolclqp8giobp9uf@4ax.com>
Source record: 64150

On Fri, 24 Feb 2006 19:28:37 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Amos Keag wrote:
>> But, what does feedpoint impedance have to do with
>> resonance?
>
>On a standing wave antenna, like a center-fed dipole, the
>feedpoint impedance is (Vfor+Vref)/(Ifor+Iref) where Vfor
>is forward voltage, Vref is reflected voltage, etc. and
>the plus sign denotes superposition, i.e. phasor addition.
>
>On a wire dipole, the resonant feedpoint impedance will
>occur only when all the phases line up, i.e. If Vfor is
>at zero degrees, Vref must be at 180 degrees, Ifor must
>be at zero degrees, and Iref must be at zero degrees. That
>way, we get minimum voltage divided by maximum current with
>a resultant phase angle of zero degrees. Eureka! The dipole
>is resonant because the feedpoint impedance is purely
>resistive.

Cecil, are you saying that a resonant dipole must have a low
impedance, and that modes where the feedpoint impedance is purely
resistive but high are not "resonant"? That seems to be what your
formulae above and explanation suggests.

Owen
--

1690. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:53:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <lvJLf.39577$H71.7490@newssvr13.news.prodigy.com>
Source record: 64151

Amos Keag wrote:
> Resonance has NOTHING to do with impedance.

jX is only zero at resonance.
--
73, Cecil http://www.qsl.net/w5dxp

1691. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 19:55:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <IwJLf.39579$H71.24173@newssvr13.news.prodigy.com>
Source record: 64152

Amos Keag wrote:
> An RF Ammeter will do just fine

What if the first current is one amp at zero degrees and the
other current is one amp at 45 degrees. Is that balanced?
--
73, Cecil http://www.qsl.net/w5dxp

1692. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 20:22:24 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <4WJLf.1213$dg.9@clgrps13>
Source record: 64153

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:ohGLf.796098$_o.157184@attbi_s71...
> This winter I have been working on the design and construction of a
> compact loop for 80 meters. The loop will be constructed from 72 ft of 3/4
> in copper pipe and will be in the shape of an octagon. The plane of the
> loop will be vertical, and the loop will be remotely tuned by a vacuum
> variable capacitor coupled to a geared stepper motor.
>
> I have just finished constructing and testing the driver for the stepper
> motor. See
> http://tinyurl.com/bwobb for pictures and some information about the
> system. Constructive comments will be appreciated.
>
> John, N9JG

John, how high above ground is the antenna?

Frank, VE6CB

1693. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 20:52:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%lKLf.39590$H71.27479@newssvr13.news.prodigy.com>
Source record: 64154

Owen Duffy wrote:
> Cecil, are you saying that a resonant dipole must have a low
> impedance, and that modes where the feedpoint impedance is purely
> resistive but high are not "resonant"? That seems to be what your
> formulae above and explanation suggests.

Yes Owen, that's what I am saying. When I was at Texas A&M in
the dark ages, we called the feedpoint impedance of a one-
wavelength dipole an "anti-resonant" impedance. It is explained
at: http://dx.doi.org/10.1036/1097-8542.041800
"Antiresonance - The condition for which the impedance of a
given electric ... system is very high, approaching infinity."

Semantics strikes again. To distinguish the left-most low resistance
point on an SWR circle from the right-most high resistance point, we
mid-20th-century Aggie EEs called the leftmost point, "resonant", and
called the rightmost point, "anti-resonant".

If you and I were ever to agree on definitions, I have no doubt
that we would also agree on concepts.
--
73, Cecil http://www.qsl.net/w5dxp

1694. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 20:54:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <loKLf.39591$H71.32623@newssvr13.news.prodigy.com>
Source record: 64155

Dot wrote:
> I one side of a dipole gets loose, you'll know all about it... the swr is
> likely to go to 6 or higher. Your receiver would be mysteriously quiet and
> you wouldn't be getting normal power from your transmitter. In the worst
> case it could damage your equipment.

Would you believe that an SGC-230 will match that mismatch
condition and the only clue that you will have is that you
are not making as many contacts as before?
--
73, Cecil http://www.qsl.net/w5dxp

1695. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:27:08 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ctsuv1lt33l86nb15up1jqmdlvtg2mkkta@4ax.com>
Source record: 64156

On Fri, 24 Feb 2006 20:52:11 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Semantics strikes again. To distinguish the left-most low resistance
>point on an SWR circle from the right-most high resistance point, we
>mid-20th-century Aggie EEs called the leftmost point, "resonant", and
>called the rightmost point, "anti-resonant".
>
>If you and I were ever to agree on definitions, I have no doubt
>that we would also agree on concepts.

I am sure we are talking the meaning of the terms (semantics) rather than the underlying concept.

Narrowing the term resonance to only apply to the resonance that exhibits a series resonance equivalent behaviour seems to me to unnecessarily limit the meaning of resonance (though I note it is used in optics to some extent).

I think of the high impedance of a dipole with zero reactance at some frequencies also as a resonance, and I think you did too when you said recently to Amos "jX is only zero at resonance." If that is to mean that jX is "only ever" zero at resonance, then if jX is zero, you have resonance, whether R is high or low.

On that basis, one would have to say that a full wave centre fed dipole exhibits (at the feed point) resonance similar to a lossy parallel tuned circuit and should be considered a resonant radiator.

Owen
--

1696. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:29:48 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vuumdqpkgat09@corp.supernews.com>
Source record: 64157

Sorry, when I read "RF ammeter", I thought only of the old type which resembles a panel meter and has two terminals to connect in line with a single conductor. A clamp-on type would indeed do the job, as we discussed here not long ago.

Roy Lewallen, W7EL

chuck wrote:
> Wouldn't the clamp-on type ammeter as discussed previously provide that
> information (provided a section of twin lead small enough to fit the
> clamp were used?
>
> Chuck
>
> Roy Lewallen wrote:
>> Amos Keag wrote:
>>
>>>
>>> YEP!!
>>>
>>> An RF Ammeter will do just fine
>>
>>
>> Balance requires that the currents in the two wires be equal in
>> magnitude and opposite in phase (or direction). How do you connect an
>> RF ammeter to determine this?
>>
>> Roy Lewallen, W7EL

1697. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:36:51 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vuv3l7thdn87@corp.supernews.com>
Source record: 64158

Amos Keag wrote:
>
> Resonance has NOTHING to do with impedance. Resonance is resonance; it
> has a harmonic response.
> . . .

Resonance has everything to do with impedance. Resonance is defined as any frequency at which the impedance is purely resistive; that is, where the reactive part of the impedance is zero. And that is all resonance is.

You can change the resonant frequency of an antenna by simply adding a series or parallel inductor or capacitor at the feedpoint. This doesn't change the antenna characteristics in any other way than to alter the feedpoint impedance.

Roy Lewallen, W7EL

1698. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:40:59 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <L3LLf.796414$_o.66941@attbi_s71>
Source record: 64159

Initially, at least, the loop will be just high enough so that a lawnmower can get underneath the lowest side of the octagon. It the loop works fairly well, I might install a 40 foot fiberglass flagpole and suspend the top of the loop from the top of the flagpole. Supposedly, that might cut down on some loss due to ground currents.

"Frank's" <frank599@nospam.telus.net> wrote in message
news:4WJLf.1213$dg.9@clgrps13...
> "John, N9JG" <john@gotwals.XremoveY.com> wrote in message
> news:ohGLf.796098$_o.157184@attbi_s71...
>> This winter I have been working on the design and construction of a
>> compact loop for 80 meters. The loop will be constructed from 72 ft of
>> 3/4 in copper pipe and will be in the shape of an octagon. The plane of
>> the loop will be vertical, and the loop will be remotely tuned by a
>> vacuum variable capacitor coupled to a geared stepper motor.
>>
>> I have just finished constructing and testing the driver for the stepper
>> motor. See
>> http://tinyurl.com/bwobb for pictures and some information about the
>> system. Constructive comments will be appreciated.
>>
>> John, N9JG
>
> John, how high above ground is the antenna?
>
> Frank, VE6CB
>

1699. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:42:47 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <r5LLf.1227$dg.71@clgrps13>
Source record: 64160

>> This winter I have been working on the design and construction of a
>> compact loop for 80 meters. The loop will be constructed from 72 ft of
>> 3/4 in copper pipe and will be in the shape of an octagon. The plane of
>> the loop will be vertical, and the loop will be remotely tuned by a
>> vacuum variable capacitor coupled to a geared stepper motor.
>>
>> I have just finished constructing and testing the driver for the stepper
>> motor. See
>> http://tinyurl.com/bwobb for pictures and some information about the
>> system. Constructive comments will be appreciated.
>>
>> John, N9JG
>
> John, how high above ground is the antenna?
>
> Frank, VE6CB

John, just for interest I placed the top of the antenna at 30 ft; which puts the base at about 8' 3". Using NEC's Sommerfeld/Norton ground with: sigma = 5 mS/m, and Er = 13. The input impedance computes to 6.57 + j855.6 ohms. Since this is very close to the edge of the Smith Chart, your 1 ohm figure is probably within a reasonable margin of error. However I cannot see how you can match such an impedance with a single element.

The structure appears to be a very efficient, physically small, antenna. NEC computes 0.84% copper loss.

Frank

1700. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:44:15 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-8FBD88.15440824022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64161

In article <UfJLf.39570$H71.4889@newssvr13.news.prodigy.com>,
Cecil Moore <mycall@arrl.net> wrote:

> Big Endian wrote:
> > How does one check the balance between two parallel feed wires into a
> > doublet antenna. Neon bulbs or some sort of meter gizmo?
>
> The easiest way is to use a large sampling toroid such
> that the balanced line can be fed through the toroid.
> A ten-turn sampling coil will indicate any unbalance.
> Note that the balanced line needs to be centered with
> respect to the toroid and needs to be moved along the
> feedline to obtain maximum accuracy. Ideally, the toroid
> needs to be located at a standing wave current maximum
> point. Since my choke-balun is always located at a current
> maximum point, I can easily monitor my feedline balance.
>
> You can also use smaller toroids on each line and then
> superpose the two readings. But the two toroids need to
> be identical which is no small requirement.

An unbalanced condition would have a meter indication, like current
flow? Balanced the meter needle would not move? I want to monitor this
condition on the feedline in the shack from the Johnson KW matchbox.

1701. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:45:42 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <a8LLf.1228$dg.669@clgrps13>
Source record: 64162

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:L3LLf.796414$_o.66941@attbi_s71...
> Initially, at least, the loop will be just high enough so that a lawnmower
> can get underneath the lowest side of the octagon. It the loop works
> fairly well, I might install a 40 foot fiberglass flagpole and suspend the
> top of the loop from the top of the flagpole. Supposedly, that might cut
> down on some loss due to ground currents.

Thanks John, I guess my estimate of 8ft at the base is a bit high -- see
following post.

Frank

1702. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 21:54:29 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <ogLLf.796419$_o.494459@attbi_s71>
Source record: 64163

I plan to feed the loop at the side opposite to the side containing the tuning capacitor. Note that the capacitor is inserted in series with the loop and is used to tune the loop to resonance at the operating frequency. A gamma match is used to connect the coax to the loop, and the loop is NOT cut on the feed side.

"Frank's" <frank599@nospam.telus.net> wrote in message news:r5LLf.1227$dg.71@clgrps13...
>>> This winter I have been working on the design and construction of a
>>> compact loop for 80 meters. The loop will be constructed from 72 ft of
>>> 3/4 in copper pipe and will be in the shape of an octagon. The plane of
>>> the loop will be vertical, and the loop will be remotely tuned by a
>>> vacuum variable capacitor coupled to a geared stepper motor.
>>>
>>> I have just finished constructing and testing the driver for the stepper
>>> motor. See
>>> http://tinyurl.com/bwobb for pictures and some information about the
>>> system. Constructive comments will be appreciated.
>>>
>>> John, N9JG
>>
>> John, how high above ground is the antenna?
>>
>> Frank, VE6CB
>
> John, just for interest I placed the top of the antenna at 30 ft; which
> puts the base at about 8' 3". Using NEC's Sommerfeld/Norton ground with:
> sigma = 5 mS/m, and Er = 13. The input impedance computes to 6.57 +
> j855.6 ohms. Since this is very close to the edge of the Smith Chart, your
> 1 ohm figure is probably within a reasonable margin of error. However I
> cannot see how you can match such an impedance with a single element.
>
> The structure appears to be a very efficient, physically small, antenna.
> NEC computes 0.84% copper loss.
>
> Frank
>

1703. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 22:28:12 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <0MLLf.4631$Cp4.2037@edtnps90>
Source record: 64164

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:ogLLf.796419$_o.494459@attbi_s71...
>I plan to feed the loop at the side opposite to the side containing the
>tuning capacitor. Note that the capacitor is inserted in series with the
>loop and is used to tune the loop to resonance at the operating frequency.
>A gamma match is used to connect the coax to the loop, and the loop is NOT
>cut on the feed side.

Ok, thanks. I am sure the loop will work very well.

Frank

1704. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 22:35:46 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6TLLf.13321$rL5.8593@newssvr27.news.prodigy.net>
Source record: 64165

Owen Duffy wrote:
> On that basis, one would have to say that a full wave centre fed
> dipole exhibits (at the feed point) resonance similar to a lossy
> parallel tuned circuit and should be considered a resonant radiator.

I know that is what your gut feeling wishes were true. But a
large portion of the RF engineering community considers "anti-
resonance" to be the exact opposite of "resonance" and indeed
it is the exact opposite on a Smith Chart, being the opposite
side of the SWR circle. Semantics strikes again. I'm sure that
our Russian counterparts have a completely different word for
exactly the same effects.
--
73, Cecil http://www.qsl.net/w5dxp

1705. orchard wire mesh Beverage?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 22:37:57 UTC
From: Dan Jacobson <jidanni@jidanni.org>
Message-ID: <87mzgg4c3e.fsf@jidanni.org>
Source record: 64168

Next door is an hectare large orchard covered with a tree supporting
wire mesh, one wire per meter, all two meters above the ground, and
grounded to anchors all along its edge. Any Beverage style receiving use?

1706. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 22:41:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <SYLLf.13323$rL5.10999@newssvr27.news.prodigy.net>
Source record: 64166

Roy Lewallen wrote:
> Resonance has everything to do with impedance. Resonance is defined as
> any frequency at which the impedance is purely resistive; ...

In the distant past, when I had a dinosaur for a pet, resonance
was defined as the frequency at which the impedance is a purely
low impedance. The frequency at which the impedance was a
purely high resistance was known at the anti-resonant point,
the exact opposite of resonance, and indeed, it was the exact
other side of the SWR circle on a Smith Chart.
--
73, Cecil http://www.qsl.net/w5dxp

1707. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 22:44:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <4%LLf.13325$rL5.10680@newssvr27.news.prodigy.net>
Source record: 64167

Big Endian wrote:
> An unbalanced condition would have a meter indication, like current
> flow? Balanced the meter needle would not move?

Yes, for a balanced condition, the meter needle should
not move.
--
73, Cecil http://www.qsl.net/w5dxp

1708. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-24 23:19:54 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <XKidnZKGw8wECWLeRVn-sQ@comcast.com>
Source record: 64169

Hi Roy,

I have a couple of RF current meters with freq. response from 10KHz to 100MHZ that are the types used for FCC part 15, DO-160E testing etc. and have a transfer impedance of 0dB-ohm. They have an opening of about 1.6" dia. and I sqeeze the feedline together (spacing about 1.5") temporarily and clamp over both conductors for measurement #1 and clamp over just 1 of the conductors for measurement #2. I read the output of the current probe with an RF power meter. In my case the current in a single conductor was approximately 15dB above the differential current which seemed to be pretty well balanced. Is there anything wrong with this approach?

Larry Benko, W0QE

Roy Lewallen wrote:
> Amos Keag wrote:
>
>>
>> YEP!!
>>
>> An RF Ammeter will do just fine
>
>
> Balance requires that the currents in the two wires be equal in
> magnitude and opposite in phase (or direction). How do you connect an RF
> ammeter to determine this?
>
> Roy Lewallen, W7EL

1709. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 00:21:32 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1140826892.169941.137710@i40g2000cwc.googlegroups.com>
Source record: 64170

Egad. Calling it antiresonance is asking for (communications) trouble, since not eveyone uses the same terms. Just call it "half-wave resonance" and "full-wave resonance". I don't think I've EVER heard anyone call a parallel-tuned circuit "anti-resonant." I do regularly hear people distinguish between series and parallel resonance, however. I'm not likely to soon adopt "antiresonance" for either condition, as it sounds way too much like something opposing resonance.

Cheers,
Tom

1710. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 00:41:31 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vv9ts9iv1t23d@corp.supernews.com>
Source record: 64171

Larry Benko wrote:
> Hi Roy,
>
> I have a couple of RF current meters with freq. response from 10KHz to
> 100MHZ that are the types used for FCC part 15, DO-160E testing etc. and
> have a transfer impedance of 0dB-ohm. They have an opening of about
> 1.6" dia. and I sqeeze the feedline together (spacing about 1.5")
> temporarily and clamp over both conductors for measurement #1 and clamp
> over just 1 of the conductors for measurement #2. I read the output of
> the current probe with an RF power meter. In my case the current in a
> single conductor was approximately 15dB above the differential current
> which seemed to be pretty well balanced. Is there anything wrong with
> this approach?
>
> Larry Benko, W0QE

Not that I can see. In my opinion it's the best way to make the measurement. A homebrew version of this is entirely adequate, though, as described in the earlier thread. It's very important to terminate the secondary with a fairly low impedance so the transformer doesn't present a significant impedance to the line. I assume your meter does this internally -- maybe that information is in the transfer impedance you mentioned and which I don't really understand.

Roy Lewallen, W7EL

1711. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:09:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <s7OLf.60137$PL5.2317@newssvr11.news.prodigy.com>
Source record: 64172

K7ITM wrote:
> I'm not likely to soon adopt "antiresonance" for either condition, as
> it sounds way too much like something opposing resonance.

In a transmission line with reflections, antiresonance is
indeed plus or minus 90 degrees from resonance and "never
the twain shall meet". Resonance and antiresonance cannot,
by definition, occur at the same point, i.e. if a point
is antiresonant, it cannot, by definition, be resonant.

Quoting "Transmission Lines and Networks", by Walter C.
Johnson, PhD. (one of the heavyweight gurus of the mid-20th-
century) page 156: "When the lossless line is an odd number
of quarter wavelengths long, the sending-end impedance is
theoretically infinite (inversion of the receiving-end
impedance). The actual impedance, considering losses, is a
very large resistance, and the line is said to be ANTIRESONANT."
(Capitals substituted for italics for obvious reasons)

So your argument is with Walter C. Johnson, PhD, ex-chairman of
the Department of Electrical Engineering at Princeton University,
not with me.
--
73, Cecil http://www.qsl.net/w5dxp

1712. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:12:42 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <0MCdnSUB24eaMmLeRVn-tA@comcast.com>
Source record: 64173

If the feed is 'changing the resonance' then there is a problem with the feed!!

Richard Clark wrote:

> On Fri, 24 Feb 2006 11:48:22 -0500, Amos Keag <A.K01@comcast.net>
> wrote:
>
>
>>Resonance has NOTHING to do with impedance. Resonance is resonance; it
>>has a harmonic response.
>
>
> Hi Amos,
>
> Resonance is the absence of reactance, or more properly its term is 0.
> As reactance is fully part of the specification to impedance,
> resonance has a very unique relation: r ï¿½j0.
>
> You can take a dipole that exhibits this unique characteristic at
> regular intervals of frequency - notably at harmonics (in a perfect
> world, not so necessarily in life). You can also take that same
> length of wire and shift the feedpoint such that its resonance (still
> that same characteristic loss of X with some remaining R) changes in
> frequency - as does the spectrum of other resonances which are
> sometimes no longer related by harmonics.
>
> Taking as an example, an 11 segment 3mm wire 37.9M long in free space
> and feed it in the conventional way (in the middle) and its resonances
> may be observed at:
> 3.8 MHzï¿½
> 7.95 MHzï¿½
> 11.75 MHzï¿½
> 16.25 MHzï¿½
> 19.65 MHzï¿½
> 24.65 MHzï¿½
> 27.55 MHzï¿½
>
> Or feed it at 68% along its length (or segment 8) and observe:
> 3.8 MHzï¿½ (with a Higher R as I had incorrectly argued with Dan)
> 5.65 MHzï¿½
> 7.85 MHzï¿½
> 12.45 MHzï¿½
> 15.65 MHzï¿½
> 17.55 MHzï¿½

> 19.65 MHzï¿½
> 25.55 MHzï¿½
> 27.55 MHzï¿½
>
> where strictly speaking MHzï¿½ is resonance and MHzï¿½ is anti-resonance
>
> A curious property has emerged, we now have 9 resonances (speaking
> largely) where formerly we had 7 in exactly the same span of frequency
> for the same piece of wire. Further, we also have the anti-resonance
> of the standard dipole at 8 MHz replaced by a resonance in the OCF
> dipole.
>
> To roll back the calendar 10 years or so, this is also the hallmark of
> fractal antennas in that they exhibit more resonances than found in
> "conventional" dipoles.
>
> There are certain lengths of wire, with certain offsets of feed that
> offer fairly good overlaps with Ham Bands that are not otherwise found
> in common dipoles. I am at a loss to specify those "certain"
> characteristics, and it is arguable that feeding an offset dipole can
> be successfully achieved without some effort in isolating (choking)
> the feedpoint from the driveline - a distasteful reality conveniently
> discarded in modeling.
>
> 73's
> Richard Clark, KB7QHC

1713. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:13:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <lbOLf.60138$PL5.48602@newssvr11.news.prodigy.com>
Source record: 64174

Dot wrote:
> Looking at your definitions I would suggest that "resonance" is really the
> point at which the antenna mimics a series resonant circuit, exhibiting a
> low impedence and "anti-resonance" is the point at which it mimics a
> parallel resonant circuit, exhibiting a high impedence.

True, but I cannot take credit for the definition which comes from
"Transmission Lines and Networks", by Walter C. Johnson, PhD, guru
and chairman of the Department of Electrical Engineering, Princeton
University during the 1940's and 1950's.
--
73, Cecil http://www.qsl.net/w5dxp

1714. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:16:55 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <0MCdnSQB24eZLWLeRVn-tA@comcast.com>
Source record: 64175

Purely resistive load = resonance ..... PERIOD

Cecil Moore wrote:

> Owen Duffy wrote:
>
>> On that basis, one would have to say that a full wave centre fed
>> dipole exhibits (at the feed point) resonance similar to a lossy
>> parallel tuned circuit and should be considered a resonant radiator.
>
>
> I know that is what your gut feeling wishes were true. But a
> large portion of the RF engineering community considers "anti-
> resonance" to be the exact opposite of "resonance" and indeed
> it is the exact opposite on a Smith Chart, being the opposite
> side of the SWR circle. Semantics strikes again. I'm sure that
> our Russian counterparts have a completely different word for
> exactly the same effects.

1715. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:17:31 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <nqGdneTws663LWLenZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 64076

Roy,

It is amazing how a simple concept such as impedance can be made obscure but most current probes are spec'd this way by the manufacturers and test procedures for DO-160E (FAA aircraft testing) call out probes the same way. By saying that a current probe has a transfer impedance of 0dB-ohm means 0dB relative to 1 ohm, but R = V/I so 0dB-ohm means that for 1A of current thru the primary of the probe produces 1V across a 50 ohm load. Similarly a -20db-ohm transfer means that 1A produces .1V across a 50 ohm load. For most of us, this means a 1 turn primary and a 50 turn secondary which yields a theoretical primary impedance or 0.02 ohms. One of the probes I have says the primary impedance is less than .1 ohm.

Larry Benko, W0QE

Roy Lewallen wrote:
> Larry Benko wrote:
>
>> Hi Roy,
>>
>> I have a couple of RF current meters with freq. response from 10KHz to
>> 100MHZ that are the types used for FCC part 15, DO-160E testing etc.
>> and have a transfer impedance of 0dB-ohm. They have an opening of
>> about 1.6" dia. and I sqeeze the feedline together (spacing about
>> 1.5") temporarily and clamp over both conductors for measurement #1
>> and clamp over just 1 of the conductors for measurement #2. I read
>> the output of the current probe with an RF power meter. In my case
>> the current in a single conductor was approximately 15dB above the
>> differential current which seemed to be pretty well balanced. Is
>> there anything wrong with this approach?
>>
>> Larry Benko, W0QE
>
>
> Not that I can see. In my opinion it's the best way to make the
> measurement. A homebrew version of this is entirely adequate, though, as
> described in the earlier thread. It's very important to terminate the
> secondary with a fairly low impedance so the transformer doesn't present
> a significant impedance to the line. I assume your meter does this
> internally -- maybe that information is in the transfer impedance you
> mentioned and which I don't really understand.
>
> Roy Lewallen, W7EL

1716. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:21:28 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <QcednbdOQaKILGLe4p2dnA@comcast.com>
Source record: 64077

Dot wrote:

> SNIPPED
>
> Which, of course, explains my continuing reluctance to use transmatches.
>
> Yes it limits my range of antenna usage (and experience) but curse it all,
> I'd really like to know when something goes wrong.
>

You will know that also with a transmatch!!!!

I've used a transmatch for almost 45 years out of 50+ years in Ham Radio. If my antenna has a problem the settings for a 'match' [in quotes] change!! That indicates something has happened.

The system SWR increase can be seen in the changes transmatch settings.

1717. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:30:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OqOLf.60141$PL5.10040@newssvr11.news.prodigy.com>
Source record: 64078

Cecil Moore wrote:
> In a transmission line with reflections, antiresonance is
> indeed plus or minus 90 degrees from resonance and "never
> the twain shall meet". Resonance and antiresonance cannot,
> by definition, occur at the same point, i.e. if a point
> is antiresonant, it cannot, by definition, be resonant.

One more thought: In a transmission line with reflections,
a voltage node is located at a point of resonance. A voltage
anti-node is located at a point of anti-resonance. Makes
perfect sense to me.
--
73, Cecil http://www.qsl.net/w5dxp

1718. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:35:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <svOLf.60142$PL5.19517@newssvr11.news.prodigy.com>
Source record: 64079

Amos Keag wrote:
> If the feed is 'changing the resonance' then there is a problem with the
> feed!!

Not at all. As you can see at: http://www.qsl.net/w5dxp/notuner.htm,
I use "the feed" for the specific purpose of changing the resonant
frequency of the antenna system. The impedance transforming series-
section is really a series stub which resonants the entire antenna
system.
--
73, Cecil http://www.qsl.net/w5dxp

1719. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 01:39:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <GzOLf.60143$PL5.12353@newssvr11.news.prodigy.com>
Source record: 64080

Amos Keag wrote:
> I've used a transmatch for almost 45 years out of 50+ years in Ham
> Radio. If my antenna has a problem the settings for a 'match' [in
> quotes] change!!

How do you know when the settings for an SGC-230
autotuner change?
--
73, Cecil http://www.qsl.net/w5dxp

1720. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 02:49:40 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <43FFC5C4.4010403@comcast.net>
Source record: 64081

Frank,

Will you please forward the nec code?

Thanks - Dan

Frank's wrote:
>>>This winter I have been working on the design and construction of a
>>>compact loop for 80 meters. The loop will be constructed from 72 ft of
>>>3/4 in copper pipe and will be in the shape of an octagon. The plane of
>>>the loop will be vertical, and the loop will be remotely tuned by a
>>>vacuum variable capacitor coupled to a geared stepper motor.
>>>
>>>I have just finished constructing and testing the driver for the stepper
>>>motor. See
>>>http://tinyurl.com/bwobb for pictures and some information about the
>>>system. Constructive comments will be appreciated.
>>>
>>>John, N9JG
>>
>>John, how high above ground is the antenna?
>>
>>Frank, VE6CB
>
>
> John, just for interest I placed the top of the antenna at 30 ft; which puts
> the base at about 8' 3". Using NEC's Sommerfeld/Norton ground with: sigma =
> 5 mS/m, and Er = 13. The input impedance computes to 6.57 + j855.6 ohms.
> Since this is very close to the edge of the Smith Chart, your 1 ohm figure
> is probably within a reasonable margin of error. However I cannot see how
> you can match such an impedance with a single element.
>
> The structure appears to be a very efficient, physically small, antenna.
> NEC computes 0.84% copper loss.
>
> Frank
>
>

1721. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 03:21:38 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <8sivv1pq72rlgjh0lhdf9k0gpp4aq1fobm@4ax.com>
Source record: 64082

On Fri, 24 Feb 2006 20:12:42 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>If the feed is 'changing the resonance' then there is a problem with the
>feed!!
>

Hi Amos,

Where do you see that in the data? Or are you mis-interpreting the distinction between the choice of the feed point with attaching a feed line? The model distinctly lacks a feed line, or may be presumed to have a feed line that is completely isolated from the antenna(s).

The wire retains its original fundamental resonance - within a couple dozen KHz, a negligible difference. The remainder of its resonances are strictly governed by the selection of the feed point's position along the length of the wire. I incorrectly argued for a lower Z with Dan earlier. By and large, moving away from the center raises the Z (principally R at resonances above the fundamental).

73's
Richard Clark, KB7QHC

1722. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 03:49:19 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vvku12b8t8398@corp.supernews.com>
Source record: 64083

Dot wrote:
> On Fri, 24 Feb 2006 22:41:54 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>> Roy Lewallen wrote:
>>> Resonance has everything to do with impedance. Resonance is defined as
>>> any frequency at which the impedance is purely resistive; ...
>> In the distant past, when I had a dinosaur for a pet, resonance
>> was defined as the frequency at which the impedance is a purely
>> low impedance. The frequency at which the impedance was a
>> purely high resistance was known at the anti-resonant point,
>> the exact opposite of resonance, and indeed, it was the exact
>> other side of the SWR circle on a Smith Chart.
>
> These days, resonance is described as either:
>
> a) the point at which Inductive Reactance and Capacitive Reactance are equal
> or
> b) the point at which a load impedence is purely resistive.

The two points are exactly the same.

> Looking at your definitions I would suggest that "resonance" is really the
> point at which the antenna mimics a series resonant circuit, exhibiting a
> low impedence and "anti-resonance" is the point at which it mimics a
> parallel resonant circuit, exhibiting a high impedence.

The high-impedance full-wave resonant point (for a dipole; half-wave
resonant point for a monopole) is sometimes called "anti-resonance", but
not commonly, and mostly in older literature. It's a true point of
resonance, that is, where the reactance is zero. I don't believe I've
ever heard the term "anti-resonance" applied to other high-impedance
resonant circuits, such as a tank circuit.

> It would then be reasonable for a given wire perpendicular to a good ground
> plane to exhibit "resonance" at odd multiples of a quarter wavelength and
> "anti-resonance" at even multiples of a quarter wavelength... Translating
> gives low impedence at odds and high impedence at evens, which is where I
> started out in this discussion....

If you choose to call the high-impedance resonant points
"anti-resonance", that's true. But again, they're points where the
reactance is zero, just like the points you're calling "resonant". The
only difference is that the impedance is high and the antenna acts more
like a parallel tuned circuit at nearby frequencies rather than a series
tuned circuit.

> Your semantics is correct if you are looking to define an antenna as "a
> current fed device", but that's not always the case. There are end fed half
> waves out there... they are voltage fed, they are resonant and they do work.
> (Ask anyone who owns a "Ringo Ranger".)

No, the definition of resonance has nothing to do with how an antenna is fed. The impedance of the antenna doesn't change with the feed method (assuming of course that it has a single feed point), and therefore its resonant frequencies don't change with the feed method. (You can, of course, alter the resonant frequencies of an antenna *system* by adding reactance at the feedpoint or elsewhere.) And an antenna doesn't have to be resonant (that is, have a non-reactive feedpoint impedance) to "work". Resonance is only an indication of the reactance of the input impedance, and has nothing to do with an antenna's gain, pattern, bandwidth, or other performance characteristics.

Roy Lewallen, W7EL

1723. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 03:52:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <11vvl35rqugfjb6@corp.supernews.com>
Source record: 64084

Larry Benko wrote:
> Roy,
>
> It is amazing how a simple concept such as impedance can be made obscure
> but most current probes are spec'd this way by the manufacturers and
> test procedures for DO-160E (FAA aircraft testing) call out probes the
> same way. By saying that a current probe has a transfer impedance of
> 0dB-ohm means 0dB relative to 1 ohm, but R = V/I so 0dB-ohm means that
> for 1A of current thru the primary of the probe produces 1V across a 50
> ohm load. Similarly a -20db-ohm transfer means that 1A produces .1V
> across a 50 ohm load. For most of us, this means a 1 turn primary and a
> 50 turn secondary which yields a theoretical primary impedance or 0.02
> ohms. One of the probes I have says the primary impedance is less than
> .1 ohm.
>
> Larry Benko, W0QE

Thanks for the explanation. My concern is with the insertion impedance, which at 0.02 or even 0.1 ohm, is certainly adequately low for this device -- as long as it's properly terminated.

Roy Lewallen, W7EL

1724. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 04:18:19 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <h_6dnZTeseMXR2LeRVn-pA@comcast.com>
Source record: 64085

Roy Lewallen wrote:
> Larry Benko wrote:
>
>> Roy,
>>
>> It is amazing how a simple concept such as impedance can be made
>> obscure but most current probes are spec'd this way by the
>> manufacturers and test procedures for DO-160E (FAA aircraft testing)
>> call out probes the same way. By saying that a current probe has a
>> transfer impedance of 0dB-ohm means 0dB relative to 1 ohm, but R = V/I
>> so 0dB-ohm means that for 1A of current thru the primary of the probe
>> produces 1V across a 50 ohm load. Similarly a -20db-ohm transfer
>> means that 1A produces .1V across a 50 ohm load. For most of us, this
>> means a 1 turn primary and a 50 turn secondary which yields a
>> theoretical primary impedance or 0.02 ohms. One of the probes I have
>> says the primary impedance is less than .1 ohm.
>>
>> Larry Benko, W0QE
>
>
> Thanks for the explanation. My concern is with the insertion impedance,
> which at 0.02 or even 0.1 ohm, is certainly adequately low for this
> device -- as long as it's properly terminated.
>
> Roy Lewallen, W7EL

That's why these probes which are about the size of a small donut cost over $1000. Since they are used to qualify EMI emissions from other equipment they are priced like test equipment and certified to be accurate. Generally the frequency response if terminated properly is flat to within a fraction of a dB. Occasionally they show up on eBay and usually go for less than $100. With no parts to wear out they never go bad unless they have been used to test equipment for EMI susceptability where you transmit RF into them, sometimes at high power levels.

Larry, W0QE

1725. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 04:21:22 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <6XQLf.5171$M52.5078@edtnps89>
Source record: 64086

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:43FFC5C4.4010403@comcast.net...
> Frank,
>
> Will you please forward the nec code?
>
> Thanks - Dan

Hi Dan, this is essentially the initial code that I used. I have just removed, and replaced, the "GM" card by a series of "GW" cards.

Note that John mentioned he is using a gamma match, and tunes out the reactance of the loop on the opposite side. The diameter of the loop is a nominal 20 ft, so it would make the most sense to tune, and feed, the antenna on the two vertical elements. My model is 30 ft at the top, and 8.272 ft at the bottom, so even with the reduced height motorized tuning makes a lot of sense. I am going to model a gamma match, and opposite side tuning cap, so will update the code this weekend.

The antenna is virtually lossless, with a 99.8% efficiency, and even exhibits quite a good low angle performance. The gain at 25 deg elevation is 0 dBi. I have no experience with gamma matches, but if you can build a practical model with 3/4" pipe, then I would guess its loss would be low. Also note the input voltage is 27 kV with a kW input.

73,

Frank

Here is the code

```
CM Octagonal loop
CE
GW 1 9 0 0 30 9 0 30 0.03125
GW 2 9 9 0 30 15.364 0 23.636 0.03125
GW 3 9 15.364 0 23.636 15.364 0 14.636 0.03125
GW 4 9 15.364 0 14.636 9 0 8.272 0.03125
GW 5 9 9 0 8.272 0 0 8.272 0.03125
GW 6 9 0 0 8.272 -6.364 0 14.636 0.03125
GW 7 9 -6.364 0 14.636 -6.364 0 23.636 0.03125
GW 8 9 -6.364 0 23.636 0 0 30 0.03125
GS 0 0 0.304800
GE 1
GN 2 0 0 0 13.0000 0.0050
EX 0 5 5 00 1 0
LD 5 1 1 72 5.8001E7
```

```
FR 0 11 0 0 3.7 0.01
RP 0 181 1 1000 -90 0 1.00000 1.00000
EN
```

1726. Technical vertical question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 04:32:05 UTC
From: "LiveToBe100.org" <livetobe100.org@gmail.com>
Message-ID: <1140841925.446621.18100@i39g2000cwa.googlegroups.com>
Source record: 64087

If you have a Ground Mounted, or an Above Ground Mounted vertical, can
you create a lobe by placing your radials pointed in the direction you
want the lobe to occure? or, does the lobe occure in the opposite
direction from which you have the radials pointed?

What is the optimum length for radials:

1/10 wavelength?

1/4 wavelength?

1/4 wavelength plus 2%?

1/2 wavelength?

1 wavelength?

2 wavelengths?

Is the optimum wavelength a function of where the vertical is mounted?
i.e. Ground Mounted or Above Grounded Mounted.

Thanks for your help.

William
http://LiveToBe100.org
- Retirement News -

1727. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 04:39:02 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <GbRLf.5174$M52.1045@edtnps89>
Source record: 64088

"Frank" <ve6cb@nospam.telus.net> wrote in message
news:6XQLf.5171$M52.5078@edtnps89...
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:43FFC5C4.4010403@comcast.net...
>> Frank,
>>
>> Will you please forward the nec code?
>>
>> Thanks - Dan
>

PS, inserting a 50 pF capacitor on the opposite side to the feed point -- as John mentions on his web site -- makes the free space input impedance 1.1 ohms. 30 ft, at the top, above an average Sommerfeld/Norton ground, the input impedance rises to 2 ohms.

Frank

1728. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 04:51:01 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <VmRLf.5177$M52.3772@edtnps89>
Source record: 64089

"Frank" <ve6cb@nospam.telus.net> wrote in message
news:GbRLf.5174$M52.1045@edtnps89...
>
> "Frank" <ve6cb@nospam.telus.net> wrote in message
> news:6XQLf.5171$M52.5078@edtnps89...
>>
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:43FFC5C4.4010403@comcast.net...
>>> Frank,
>>>
>>> Will you please forward the nec code?
>>>
>>> Thanks - Dan
>>
>
> PS, inserting a 50 pF capacitor on the opposite side to the feed point --
> as John mentions on his web site -- makes the free space input impedance
> 1.1 ohms. 30 ft, at the top, above an average Sommerfeld/Norton ground,
> the input impedance rises to 2 ohms.
>
> Frank

PPS I just noticed the 27 kV P-P voltage is across the tuning capacitor.

1729. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 05:21:52 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QPRLf.25070$_S7.13564@newssvr14.news.prodigy.com>
Source record: 64090

Roy Lewallen wrote:
> The impedance of the antenna doesn't change with the feed method ...

One feed method is center feed. Another feed method is off-center feed.
The feedpoint impedance of the antenna changes with position since
for 1/2WL, for instance, the net voltage is a sine wave referenced
to the center, and the net current is a cosine wave referenced to the
center. The feedpoint impedance is approximately sin(x)/cos(x)=tan(x)
where 'x' is the number of degrees away from center.
--
73, Cecil http://www.qsl.net/w5dxp

1730. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 05:55:44 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1140846944.072561.62710@z34g2000cwc.googlegroups.com>
Source record: 64091

Geez, Cecil, I don't have an argument with either of you. I'm just telling you that the people I work with qualify resonance with different terms than you do. You're welcome to use whatever terms you want.

Cheers,
Tom

1731. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 06:29:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6PSLf.16348$2O6.5443@newssvr12.news.prodigy.com>
Source record: 64092

K7ITM wrote:
> Geez, Cecil, I don't have an argument with either of you.

The Devil made me do it. :-)
--
73, Cecil http://www.qsl.net/w5dxp

1732. Re: Low power 5w FM Transmitter antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 06:32:34 UTC
From: jimg <jamesgor@verizon.net>
Message-ID: <1140849153.951030.313970@v46g2000cwv.googlegroups.com>
Source record: 64093

I think the cheapest and best performing antenna you could make is a 300ohm twinlead J pole. There are several websites though I would be willing to send you the pdf from QST if you like. Cost is <$10 and <20min to construct. Can mount it on a stick or in a pvc pipe. Performs better than a dipole and is fed directly with coax with low SWR. At 5 watts, though, coverage could hit a hundred square miles depending on the topography. Maybe 100mW would be better, huh?

1733. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 06:58:57 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <beTLf.1206$Uc2.194@fed1read04>
Source record: 64094

```
"Lee" <lo012a4519@blueyonder.co.uk> wrote in message
news:KIzLf.48616$Q22.34001@fe1.news.blueyonder.co.uk...
>
> "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> news:MebLf.968$Uc2.471@fed1read04...
> >
> > "Lee" <lo012a4519@blueyonder.co.uk> wrote in message
> > news:rXUKf.31812$Q22.24541@fe1.news.blueyonder.co.uk...
> > >
> > > "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> > > news:RUSKf.130$Uc2.57@fed1read04...
> > > > >
> > > > <someone@somedomain.com.invalid> wrote in message
> > > > news:IyQKf.18144$Ug4.11471@dukeread12...
> > > > > >
> > > > > >
> > > > > >
> > > > http://64.71.184.220/eng/gpspatch.txt
> > > > >
> > > > http://www.arrl.org/tis/info/pdf/0210036.pdf
> > > > >
> > > > http://vancouver-webpages.com/peter/gpspatch.gif
> > > >
> > > Any more designs to suit a Garmin 310 ???
> > >
> > > Lee .....G6ZSG.....
> > >
> > >
> > >
> > Lee,
> >
> > These are free-space antennas, intended for fitting with a length of
coax
> > terminated in the particular connector that mates with the connector on
> your
> > GPS rcvr. My Garmin GPS-III takes a BNC and I have my patch antenna
> mounted
> > on my van's luggage rack; Eight feet of coax brings the signal inside.
>
> Not too sure what i want, i`m a bit of a newb to GPS....just bought
it!!!...
>
> > Not familiar with the 310 -- are you looking for an add-on antenna that
> > physically mounts to your 310? ... or does the 310 require a special
```

> > coupling technique (non-connector)?
>
> Same as the 320,330 and 340 series
>
> Lee.......G6ZSG.......
>
>
My external antennas are all non-specific to the brand and model of consumer-grade GPS receivers (those using only the L1 signal). The connection method varies among receivers.

If you are buying an antenna, here is Garmin's web link to the manual: http://www.garmin.com/manuals/StreetPilotc310_OwnersManual.pdf

See page 26 for a mention of the GA27C antenna. Of course, it comes with the cable end being the right connector (MCX) for your receiver. Hunt in your manual if the pages don't match the one I found online.

If you are making your own antenna from plans I linked to, you will need to also buy a type MCX connector for the cable end, as that is the connector type specified here: http://www.garmin.com/products/sp330/spec.html (which is the link from page 26 in the manual.)

www.jameco.com sells MCX connectors, but if you google for "MCX connector" (with the quotes) you will get not only sources for the connector but also quite
a few third-party vendors with ready-built GPS antennas using that connector.
You are apparently in a large group of Garmin users who want an external antenna.

1734. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 08:51:20 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <YugR33FIqBAEFAKj@ifwtech.co.uk>
Source record: 64095

Larry Benko wrote:
>Roy Lewallen wrote:
>> Larry Benko wrote:
>>
>>> Roy,
>>>
>>> It is amazing how a simple concept such as impedance can be made
>>>obscure but most current probes are spec'd this way by the
>>>manufacturers and test procedures for DO-160E (FAA aircraft testing)
>>>call out probes the same way. By saying that a current probe has a
>>>transfer impedance of 0dB-ohm means 0dB relative to 1 ohm, but R =
>>>V/I so 0dB-ohm means that for 1A of current thru the primary of the
>>>probe produces 1V across a 50 ohm load. Similarly a -20db-ohm
>>>transfer means that 1A produces .1V across a 50 ohm load. For most
>>>of us, this means a 1 turn primary and a 50 turn secondary which
>>>yields a theoretical primary impedance or 0.02 ohms. One of the
>>>probes I have says the primary impedance is less than .1 ohm.
>>>
>>> Larry Benko, W0QE
>> Thanks for the explanation. My concern is with the insertion
>>impedance, which at 0.02 or even 0.1 ohm, is certainly adequately low
>>for this device -- as long as it's properly terminated.

Thanks, Larry. "dB-ohm" was a new one on me, too.

>That's why these probes which are about the size of a small donut cost
>over $1000. Since they are used to qualify EMI emissions from other
>equipment they are priced like test equipment and certified to be
>accurate. Generally the frequency response if terminated properly is
>flat to within a fraction of a dB. Occasionally they show up on eBay
>and usually go for less than $100. With no parts to wear out they
>never go bad unless they have been used to test equipment for EMI
>susceptability where you transmit RF into them, sometimes at high power >levels.

They also come in larger sizes than donuts. A friend who works in
radiation protection uses them to measure RF currents in the wrists and
ankles of workers, eg operators of machines for RF welding of plastics.

But all these things have to be tested first... which is how he found
himself with one of these big toroids clamped around his ankle,
standing outdoors on the chicken-wire groundplane of an HF monopole, in
bare feet, in November. All in the name of "Occupational Health"... but
definitely not his own.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)

http://www.ifwtech.co.uk/g3sek

1735. Re: Technical vertical question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 12:21:17 UTC
From: Jim <K4SQR@juno.com>
Message-ID: <1140870077.116336.70770@p10g2000cwp.googlegroups.com>
Source record: 64096

Testing has shown no discernable difference in a vertical pattern when
certain directions are favored with the radial system.
So many hams feel they get best performance from end fed halfwaves
with 4-7 "counterpoise rod", and are only fooling themselves. A 1/4w
vertical with 60 on gorund radials is a very
efficient antenna on long hauls.
Good luck,
Jim

1736. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 14:03:16 UTC
From: bob <bobkkk@hotmail.com>
Message-ID: <1140876241.329750@www.vif.com>
Source record: 64097

we not buying in this stores, period!

"Brian Kelly" <kelly@dvol.com> wrote in message
news:1140633640.826547.318080@g14g2000cwa.googlegroups.com...
>
> david@drumheller.org wrote:
>> I'd like to design and build a new 2-meter Yagi antenna, and would
>> like to construct it using aluminum tubing and rod. Drawn tubing--the
>> stuff with an axial seam--would suffice.
>>
>> Anyone know of a good source for this stuff in Washington DC or nearby
>> areas in Maryland? I've tried Home Depot and the like, but the stock
>> available in these places is incomplete and expensive.
>
> Home Depot aluminum is very soft and weak and is not a very good
> material for antenna-building purposes. Use high-strength aluminum
> alloys like 6061-T6 or 6063-T6. McMaster-Carr is a good source for
> high-quality aluminum but they don't carry much of a selection of
> sizes. For ham antenna purposes your best bet is probably Texas Towers.
>
>
> http://www.texastowers.com/aluminum.htm
>
> Another route which I use is have a local friendly industrial machine
> shop or sheet metal shop on tap which will buy whatever you need from
> their established industrial metal supply houses and reimburse the shop
> for their expenses on your behalf. Usually there are no shipping costs
> involved and you can get full lengths of tubing vs. the cut 6' and 8'
> limits offered by TT and McMaster. Aluminum tubing comes from the mills
> in 12' and 21' lengths and can be simply cartopped home. The trick is
> to surf the Yellow Pages for a local indusdtrial shop which will work
> with you.
>
> Or in some cases a private individual can buy metals directly from
> local mill supply houses which sell to the industrial shops. This is a
> workable approach but only in heavily-industrialized regions where a
> metals distributor is within a reasonable driving range. The DC area
> shuld "qualify". Back to the Yellow Pages under "metals" . . .
>
>> -Dave, K3WQ
>
> w3rv
>

1737. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 16:09:50 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <ij%Lf.797528$_o.574035@attbi_s71>
Source record: 64098

Most people put the series tuning capacitor in the top side and the feed point at the bottom side. Since the capacitor, motor, and their mounting hardware is quite heavy, I am currently planning to do the reverse of the above, i.e., tuning capacitor at bottom and feed point at the top. It is not clear to me if there is any difference between these two configurations.

John, N9JG

"Frank" <ve6cb@nospam.telus.net> wrote in message
news:6XQLf.5171$M52.5078@edtnps89...

[snip]
> Note that John mentioned he is using a gamma match, and tunes out the
> reactance of the loop on the opposite side. The diameter of the loop is a
> nominal 20 ft, so it would make the most sense to tune, and feed, the
> antenna on the two vertical elements. My model is 30 ft at the top, and
> 8.272 ft at the bottom, so even with the reduced height motorized tuning
> makes a lot of sense. I am going to model a gamma match, and opposite
> side tuning cap, so will update the code this weekend.
[snip]

1738. Cage Dipool

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 16:46:04 UTC
From: John Minkjan <john.minkjan@gmail.com>
Message-ID: <1140885963.957597.136480@v46g2000cwv.googlegroups.com>
Source record: 64099

Hi everybody,

Who can help on a usefull for a cage dipool on the 40 meter band?

73, John

1739. Re: Cage Dipool

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 17:13:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtq373sjq1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64100

"John Minkjan" wrote
>
> Who can help on a usefull for a cage dipool on the 40 meter band?
==========

You may find program DIPCAGE2 to be of interest. Download from
website below in a few seconds and run immediately.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

1740. Re: Cage Dipool

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 17:28:47 UTC
From: John Minkjan <john.minkjan@gmail.com>
Message-ID: <1140888527.021146.308270@v46g2000cwv.googlegroups.com>
Source record: 64101

Thanks for the link, Reg

Some very usefull programs!

73, John (PE1MXK / PH9Z)

1741. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 17:34:55 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <3z0Mf.1838$dg.1085@clgrps13>
Source record: 64102

"John, N9JG" <john@gotwals.XremoveY.com> wrote in message
news:ij%Lf.797528$_o.574035@attbi_s71...
> Most people put the series tuning capacitor in the top side and the feed
> point at the bottom side. Since the capacitor, motor, and their mounting
> hardware is quite heavy, I am currently planning to do the reverse of the
> above, i.e., tuning capacitor at bottom and feed point at the top. It is
> not clear to me if there is any difference between these two
> configurations.
>
> John, N9JG

I have not attempted to model the gamma match, but doubt it will change the current distribution. Feeding at the top places the minimum current at the loop base which seems to effect the high angle radiation only. The gain straight up is about + 2 dBi, and -3 dBi when reversed. Low angle radiation, for example at 10 deg elevation, is - 3 dBi in both cases. Removing the capacitor totally reverses the current distribution. Maximum gain occurs parallel to the loop plane.

Frank, VE6CB

1742. Re: 80 m compact loop - progress report

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 17:56:47 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <zT0Mf.1959$dg.934@clgrps13>
Source record: 64103

"Frank's" <frank599@nospam.telus.net> wrote in message
news:3z0Mf.1838$dg.1085@clgrps13...
>
> "John, N9JG" <john@gotwals.XremoveY.com> wrote in message
> news:ij%Lf.797528$_o.574035@attbi_s71...
>> Most people put the series tuning capacitor in the top side and the feed
>> point at the bottom side. Since the capacitor, motor, and their mounting
>> hardware is quite heavy, I am currently planning to do the reverse of the
>> above, i.e., tuning capacitor at bottom and feed point at the top. It is
>> not clear to me if there is any difference between these two
>> configurations.
>>
>> John, N9JG
>
> I have not attempted to model the gamma match, but doubt it will change
> the current distribution. Feeding at the top places the minimum current
> at the loop base which seems to effect the high angle radiation only. The
> gain straight up is about + 2 dBi, and -3 dBi when reversed. Low angle
> radiation, for example at 10 deg elevation, is - 3 dBi in both cases.
> Removing the capacitor totally reverses the current distribution. Maximum
> gain occurs parallel to the loop plane.
>
> Frank, VE6CB

Also top feed increases the input impedance to 2.664 - j0.949, with the
capacitive load 0.1 -j858 at 3.75 MHz. (NEC 4.1 double precision).

1743. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 18:08:24 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtq6eo$6mq$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64104

"Ian White wrote
> But the original questioner wants to measure what's *really*
happening.
=======================================

But the original questioner can tell what's *really* happening just by
inspecting the antenna and feedline. He doesn't need any electrical
measuring instruments.

Of course, it may be in the middle of the night, in which case it
would be best to wait till the sun comes up.

Or he could rely on his memory of how he installed the antenna.

The trouble with you experts is that you overcomplicate matters and
make quite simple, obvious things appear to be mysterious.

But you have to justify your existence in one way or another. <smiley>

Reg.

1744. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 18:18:35 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-0A53B0.12183025022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64105

In article <dtq6eo$6mq$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>,
"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:

> "Ian White wrote
> > But the original questioner wants to measure what's *really*
> happening.
> ==
>
> But the original questioner can tell what's *really* happening just by
> inspecting the antenna and feedline. He doesn't need any electrical
> measuring instruments.
>
> Of course, it may be in the middle of the night, in which case it
> would be best to wait till the sun comes up.
>
> Or he could rely on his memory of how he installed the antenna.
>
> The trouble with you experts is that you overcomplicate matters and
> make quite simple, obvious things appear to be mysterious.
>
> But you have to justify your existence in one way or another. <smiley>
> ----
> Reg.

Actually I want to monitor the antenna because I have a splice in the
feedline and the feedpoint is subject to wx, snow ice and rain. Some
times the feedline itself is covered with snow and ice. I would find it
interesting to see what is happening when I see my SWR shoot up and
retuning my matchbox. I also have a strange thing happen when I apply
high power, I get a slight bump up in SWR suddenly. I often wonder if
one of my end insulators are breaking down under 1KW of RF or if there
is some imbalance on one leg due to ground or trees swaying in the wind.

1745. 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 18:24:39 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <V_ednWRHBpRDPZ3Z4p2dnA@comcast.com>
Source record: 64106

Hello:

Will be putting up a new HF atnenna for Receive-Only, to be used from 30 MHz on down

Trying to decide on a coax type for the radio to antenna run, about 150 feet.

As some will be buried in soil, want to have a PE jacket.

It appears that when factoring in the PE requirement, and certainly price, I can
do better, apparently, by picking a 75 ohm coax than a 50 ohm one.

My receivers input is, of course, stamped 50 ohm.

In a practical sense, do you experts believe I would see any difference between
50 or 75 ohm coax for a receive only situation at the 30 MHz and lower listening freq's (150 foot coax run) ?

Thanks,
Bob

1746. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 18:49:17 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <NE1Mf.3558$S25.1296@newsread1.news.atl.earthlink.net>
Source record: 64107

"Robert11" <rgsros@notme.com> wrote in message
news:V_ednWRHBpRDPZ3Z4p2dnA@comcast.com...
> Hello:
>
> Will be putting up a new HF atnenna for Receive-Only, to be used from 30
MHz
> on down
>
> Trying to decide on a coax type for the radio to antenna run, about 150
> feet.
>
> As some will be buried in soil, want to have a PE jacket.
>
> It appears that when factoring in the PE requirement, and certainly price,
I
> can
> do better, apparently, by picking a 75 ohm coax than a 50 ohm one.
>
> My receivers input is, of course, stamped 50 ohm.
>
> In a practical sense, do you experts believe I would see any difference
> between
> 50 or 75 ohm coax for a receive only situation at the 30 MHz and lower
> listening freq's (150 foot coax run) ?
>

For receiving it will not make any differance. Even for transmitting it
will only mater if youare using a 50 ohm swr or power meter and want to read
it directly. Just use almost anyting but rg-58 or rg-59 is fine and those
are not too bad. If you could handle the connection of the noncopper
shield that most of the cable TV 70 ohm rg-6 has, that would probably be
your best bet. Don't even go to the real high grade of the quad shielded
stuff.

While the receiver says 50 ohms, it is doubtful that it is actually 50 ohms
except on a very few frequencies if even then.

1747. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 18:51:47 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <rd9102t9j0qv3mnbm0r8qjsi31ulh4hpfk@4ax.com>
Source record: 64108

On Sat, 25 Feb 2006 18:18:35 GMT, Big Endian <nospam@nospam.com>
wrote:
>> "Ian White wrote
>> > But the original questioner wants to measure what's *really*
>> happening.
>> ==
>> But the original questioner can tell what's *really* happening just by
>> inspecting the antenna and feedline. He doesn't need any electrical
>> measuring instruments.
>
>Actually I want to monitor the antenna because I have a splice in the
>feedline and the feedpoint is subject to wx, snow ice and rain. Some
>times the feedline itself is covered with snow and ice. I would find it
>interesting to see what is happening when I see my SWR shoot up and
>retuning my matchbox. I also have a strange thing happen when I apply
>high power, I get a slight bump up in SWR suddenly. I often wonder if
>one of my end insulators are breaking down under 1KW of RF or if there
>is some imbalance on one leg due to ground or trees swaying in the wind.

Hi OM,

Reggie is particularly obtuse to this matter. Simple observation of a dipole that is symmetrical to earth does not guarantee balance. When that twin lead arrives at your gear, you can easily wipe that out (the presumed balance) through an inappropriate connection to ground (through any number of paths that are commonly overlooked in the shack).

Snow and ice on the line are not likely to impart a common mode current, but as revealed by bench test by contributors here, the characteristic Z of the line can change drastically, which then upsets the tune, where it follows SWR begins to change - noticeably. If your feedline is coaxial, then the ice is of no consequence, but that does not remove the jeopardy of common mode current. There you need to look at how you isolate the line from the drivepoint.

73's
Richard Clark, KB7QHC

1748. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 19:15:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <512Mf.39813$H71.11535@newssvr13.news.prodigy.com>
Source record: 64109

Robert11 wrote:
> It appears that when factoring in the PE requirement, and certainly price, I
> can do better, apparently, by picking a 75 ohm coax than a 50 ohm one.

I use a lot of 75 ohm coax that I get for free from scrap
ends from the local cable TV company. Can't beat that price.
--
73, Cecil http://www.qsl.net/w5dxp

1749. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 19:22:46 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <W8GdnXh2WZUeM53ZRVn-tA@comcast.com>
Source record: 64110

Cecil, read your post closely. then Read my post.

Antenna and antenna system are two different [read different] things.

A physical length of wire of dimension 'L' is 1/2 wave resonant at it's fundamental frequency, 3/2 waves resonant, 5/2 waves resonant, 7/2 waves resonant, at harmonics of the fundamental etc.

An antenna system is what connects the antenna to your radio in a manner where your radio can deliver energy efficiently to the antenna. it includes feedline, stubs, tuners, etc. these things are not part of the antenna but are part of the antenna system.

Once again, the basic resonance of a wire is the basic resonance of the wire. You can fiddle all you want with stubs, tuners, or what not, and still not change the resonance of the wire.

A 100 feet long wire is 1/2 wave resonant at 4.68 MHz [depending on which formula you choose]. You can tune it to transmit where you want. But the wire is still resonant at 4.68 MHz while the antenna system may be tuned anywhere between dc and light [hyperbole].

AK

Cecil Moore wrote:

> Amos Keag wrote:
>
>> If the feed is 'changing the resonance' then there is a problem with
>> the feed!!
>
>
> Not at all. As you can see at: http://www.qsl.net/w5dxp/notuner.htm,
> I use "the feed" for the specific purpose of changing the resonant
> frequency of the antenna system. The impedance transforming series-
> section is really a series stub which resonants the entire antenna
> system.

1750. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 19:23:16 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtqar3$70p$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64111

"Dot" <dot@dot.dot> wrote in message
news:0epuv1lpbqi5adut9qo1ijkp5k38hro11k@4ax.com...
> On Fri, 24 Feb 2006 19:39:31 GMT, Cecil Moore <mycall@arrl.net>
wrote:
>
> >What if one is broken and you don't know it?
>
> I one side of a dipole gets loose, you'll know all about it... the
swr is
> likely to go to 6 or higher. Your receiver would be mysteriously
quiet and
> you wouldn't be getting normal power from your transmitter. In the
worst
> case it could damage your equipment.
>
> Antenna failure is not trivial.
==========
I quite agree.

Of course, if there's anything the matter with the antenna then you will be aware of it long before you discover whether or not there's any need to get out your measuring instruments to find how much your feedline is unbalanced.

Just go out into your back yard and see whether your antenna is still up in the air or not.

Many years back I once had a neighbor who sabataged my inverted-L at 1am in the morning while I was on the air. I did NOT measure unbalance on the feedline - I was not equipped to do it - I just called the police!

It turned out that my neighbor had very sensitive ears and could hear my microphone voice through the walls of our adjoining houses.

Reg.

1751. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 19:25:49 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <W8GdnXt2WZWnMp3ZRVn-tA@comcast.com>
Source record: 64112

Feedpoint impedance does change. But, what has that to do with resonance??

Cecil Moore wrote:

> Roy Lewallen wrote:
>
>> The impedance of the antenna doesn't change with the feed method ...
>
>
> One feed method is center feed. Another feed method is off-center feed.
> The feedpoint impedance of the antenna changes with position since
> for 1/2WL, for instance, the net voltage is a sine wave referenced
> to the center, and the net current is a cosine wave referenced to the
> center. The feedpoint impedance is approximately sin(x)/cos(x)=tan(x)
> where 'x' is the number of degrees away from center.

1752. Re: Technical vertical question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 19:55:02 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <32d1025g3bhc6smmsu43gu2fu0gu5s0h6f@4ax.com>
Source record: 64113

A lot of questions in one post...
You can get some of these answers by downloading the demo package of
EZNEC. I dropped a radial from one of my test cases and found the
pattern was less on that side of the azimuth display.

Modeling buried radials is beyond my talents.
In general, more is better and longer is better. The jury is still out
in most cases.

Most of your questions are addressed in the 20th Edition Arrl Antenna
Handbook.

You can use Google to search in the Groups and also find answers to
most of your questions but that is the least reliable source that I
use. Beware of experts who use assumed names, especially!

Consider any advice from me as coming from a student in spite of old
call and the Social Security Check!

On 24 Feb 2006 20:32:05 -0800, "LiveToBe100.org"
<livetobe100.org@gmail.com> wrote:

>If you have a Ground Mounted, or an Above Ground Mounted vertical, can
>you create a lobe by placing your radials pointed in the direction you
>want the lobe to occure? or, does the lobe occure in the opposite
>direction from which you have the radials pointed?
>
>What is the optimum length for radials:
>
>1/10 wavelength?
>
>1/4 wavelength?
>
>1/4 wavelength plus 2%?
>
>1/2 wavelength?
>
>1 wavelength?
>
>2 wavelengths?
>
>
>Is the optimum wavelength a function of where the vertical is mounted?
>i.e. Ground Mounted or Above Grounded Mounted.
>
>Thanks for your help.

>
>William
>http://LiveToBe100.org
>- Retirement News -
John Ferrell W8CCW

1753. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 20:17:19 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtqe0f$e28$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64114

"Big Endian" wrote
> Actually I want to monitor the antenna because I have a splice in
the
> feedline and the feedpoint is subject to wx, snow ice and rain.
Some
> times the feedline itself is covered with snow and ice. I would
find it
> interesting to see what is happening when I see my SWR shoot up and
> retuning my matchbox. I also have a strange thing happen when I
apply
> high power, I get a slight bump up in SWR suddenly. I often wonder
if
> one of my end insulators are breaking down under 1KW of RF or if
there
> is some imbalance on one leg due to ground or trees swaying in the
wind.

==========

Perhaps you should have mentioned all this in your original enquiry.
The people you expect replies from are not mind readers!

Reg.

1754. 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 20:32:06 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <_rOdndQpXOwhI53ZnZ2dnUVZ_sGdnZ2d@comcast.com>
Source record: 64115

Hello,

Should have asked this also in my previous post re 50 or 75 ohm coax, but
I guess it is probably better to start a different thread.
New at this, so please pardon these very basic type of questions.

For a receiving only application, 30 MHz on down:
Putting up a new Inverted-L receiving antenna.

Radio, Balun, Lightning Arrestor use the 259 type of plug which I guess is
nominally for 50 ohm systems.

I can go with 75 ohm BNC connectors for the main coax run, but am pretty
well stuck with the
259 type for the already purchased units I noted above.

Intuitively, I guess I would like (all) 75 ohm connectors if I am using 75
ohm coax.

But, for 30 MHz and lower listening, would I even notice any difference,
probably ?

Is any received signal lost, or reflected back, at these 75-50 ohm junctions
?
If meaningful, any way around the problem ?

Thanks,
Bob

1755. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 20:32:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <n93Mf.13563$rL5.4086@newssvr27.news.prodigy.net>
Source record: 64116

Amos Keag wrote:
> Feedpoint impedance does change. But, what has that to do with resonance??
>
>> Roy Lewallen wrote:
>>> The impedance of the antenna doesn't change with the feed method ...

I may have inferred from Roy's posting what he didn't mean
to imply. Here's what I assumed he said: "The *feedpoint*
impedance of the antenna doesn't change with the feed
method." I hope you agree that is a false statement but
may not be the meaning that Roy intended. I apparently
made the same mistake for the meaning of your posting.
If you guys would just post in Texan, I could understand
you. di-di-di-dit---di-dit

If Roy had said, "The radiation resistance of an antenna
doesn't change with the feed method", I wouldn't have
questioned it.
--
73, Cecil http://www.qsl.net/w5dxp

1756. Re: Technical vertical question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 20:34:31 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtqf0n$g81$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64117

There is no such thing as an 'optimum' length of radials.

There is only an economic limit to what your bank balance can afford
in terms of number of dollars per S-point.

Most people's bank balance and lumbago problems run out when there are
half a dozen radials of about 15 feet in length.

Reg.

1757. Re: Looking for aluminum tubing/rod in DC/MD area

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 20:41:54 UTC
From: Brian Kelly <kelly@dvol.com>
Message-ID: <1140900114.671527.229260@e56g2000cwe.googlegroups.com>
Source record: 64118

bob wrote:
> we not buying in this stores, period!

Sorry but I don't understand, what stores??

> "Brian Kelly" <kelly@dvol.com> wrote in message
> news:1140633640.826547.318080@g14g2000cwa.googlegroups.com...
> >
> > david@drumheller.org wrote:
> >> I'd like to design and build a new 2-meter Yagi antenna, and would
> >> like to construct it using aluminum tubing . . .

w3rv

1758. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:03:37 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtqgn9vp1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64119

If you MUST use coax then prefer 75 ohms. Go for the greatest overall
75-ohm coaxial diameters. The greater the overall diameter the smaller
the attenuation in terms of dB per 100 feet.

There's no need to impedance match a 75ohm line to a 50-ohm receiver
for receiving purposes. The mismatch loss is quite small.

What matters is a severe mismatch between the antenna impedance and
the line impedance which will occur on some of the higher frequency
bands.

Reg.

1759. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:07:10 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <n8h1025dfhb2ui6lg6u35pgn0s4i6st85g@4ax.com>
Source record: 64120

On Sat, 25 Feb 2006 18:49:17 GMT, "Ralph Mowery"
<rmowery28146@earthlink.net> wrote:

>are not too bad. If you could handle the connection of the noncopper
>shield that most of the cable TV 70 ohm rg-6 has, that would probably be
>your best bet. Don't even go to the real high grade of the quad shielded
>stuff.

In this part of the world, some types of quad shield, and even some
types of the dual sheild have one of the braids made from tinned
copper and are solderable, check out the specs or get a sample and
test it.

Additionally, crimp BNC(M) connectors, F(M) connectors and F(F)-BNC(M)
adapters are available.

Owen
--

1760. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:18:31 UTC
From: Dave <noone@nowhere.com>
Message-ID: <puOdnY5QQbIvVJ3ZnZ2dnUVZ_vudnZ2d@crocker.com>
Source record: 64121

ignore it, you will never hear the difference.

"Robert11" <rgsros@notme.com> wrote in message
news:_rOdndQpXOwhI53ZnZ2dnUVZ_sGdnZ2d@comcast.com...
> Hello,
>
> Should have asked this also in my previous post re 50 or 75 ohm coax, but
> I guess it is probably better to start a different thread.
> New at this, so please pardon these very basic type of questions.
>
> For a receiving only application, 30 MHz on down:
> Putting up a new Inverted-L receiving antenna.
>
> Radio, Balun, Lightning Arrestor use the 259 type of plug which I guess is
> nominally for 50 ohm systems.
>
> I can go with 75 ohm BNC connectors for the main coax run, but am pretty
> well stuck with the
> 259 type for the already purchased units I noted above.
>
> Intuitively, I guess I would like (all) 75 ohm connectors if I am using 75
> ohm coax.
>
> But, for 30 MHz and lower listening, would I even notice any difference,
> probably ?
>
> Is any received signal lost, or reflected back, at these 75-50 ohm
> junctions ?
> If meaningful, any way around the problem ?
>
> Thanks,
> Bob
>
>
>

1761. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:22:06 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <h1i1025v7s5vf2mohu5vfeci3qbbj1vcpf@4ax.com>
Source record: 64122

On Sat, 25 Feb 2006 15:32:06 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello,
>
>Should have asked this also in my previous post re 50 or 75 ohm coax, but
>I guess it is probably better to start a different thread.
>New at this, so please pardon these very basic type of questions.
>
>For a receiving only application, 30 MHz on down:
>Putting up a new Inverted-L receiving antenna.
>
>Radio, Balun, Lightning Arrestor use the 259 type of plug which I guess is
>nominally for 50 ohm systems.

Firstly:

Some types of connectors are designed to create a minimal
characteristic impedance discontinuity, examples are N type and BNC.
PL-259s are not so designed.

Secondly, at HF, the impedance discontinuity of PL-259 or 50 ohm BNC
in a nominally 75 ohm line for your intended use is insignificant.

Beware of having 50 and 75 ohm versions of BNC and like around,
incorrect pairing risk damage to the female connector. Most 75 ohms
applications still use 50 ohm BNC connectors, even though 75 ohm
versions are available.

Owen

>
>I can go with 75 ohm BNC connectors for the main coax run, but am pretty
>well stuck with the
>259 type for the already purchased units I noted above.
>
>Intuitively, I guess I would like (all) 75 ohm connectors if I am using 75
>ohm coax.
>

See above re connector damage.

>But, for 30 MHz and lower listening, would I even notice any difference,
>probably ?
>
>Is any received signal lost, or reflected back, at these 75-50 ohm junctions
>?

Yes, we can readily calculate the effect of introducing a
discontinuity, the effect is so small in your application that you are
unlikely to be able to measure it, much less see the effect in
receiver signal strength.

Owen
--

1762. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:26:03 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <CVIn5BcrtMAEFA76@ifwtech.co.uk>
Source record: 64123

Reg Edwards wrote:
>
>"Big Endian" wrote
>> Actually I want to monitor the antenna because I have a splice in
>the
>> feedline and the feedpoint is subject to wx, snow ice and rain.
>Some
>> times the feedline itself is covered with snow and ice. I would
>find it
>> interesting to see what is happening when I see my SWR shoot up and
>> retuning my matchbox. I also have a strange thing happen when I
>apply
>> high power, I get a slight bump up in SWR suddenly. I often wonder
>if
>> one of my end insulators are breaking down under 1KW of RF or if
>there
>> is some imbalance on one leg due to ground or trees swaying in the
>wind.
>
>=====================================
>
>Perhaps you should have mentioned all this in your original enquiry.
>The people you expect replies from are not mind readers!

It was clear enough to everyone else that he wanted to know how to make
measurements. It was also clear enough for you to declare that
measurements are not necessary.

Maybe this is a good time to remind you of your own favourite quotation:

>"When you can measure what you are speaking about and express
>it in numbers you know something about it. But when you cannot
>measure it, when you cannot express it in numbers, your knowledge
>is of a meagre and unsatisfactory kind. It may be the beginning of
>knowledge but you have scarcely in your thoughts advanced to
>the state of science."
>
>William Thomson, Lord Kelvin, 1824-1907.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1763. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 21:39:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <O84Mf.53899$dW3.21230@newssvr21.news.prodigy.com>
Source record: 64124

Robert11 wrote:
> Is any received signal lost, or reflected back, at these 75-50 ohm junctions

Simply forget about that worry. PL-259s are not 50 ohms.
That's why they are not used at VHF/UHF.
--
73, Cecil http://www.qsl.net/w5dxp

1764. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 22:47:47 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201nkmsets01b7@corp.supernews.com>
Source record: 63976

I apologize for not being more clear. The context of my comment was in reply to a statement about the resonance somehow being different for "current fed" and "voltage fed" antennas. What I meant was that the antenna impedance is independent of the source impedance or other characteristics of the source. Of course, the feedpoint impedance will be different if you choose another feedpoint.

I'm surprised that this topic has aroused so much commentary. It reveals a general lack of understanding about some of the most basic and fundamental characteristics of antennas and circuits in general. Hopefully, the discussion is helping some of the readers to gain a better grasp of the subject matter.

Roy Lewallen, W7EL

Amos Keag wrote:
> Feedpoint impedance does change. But, what has that to do with resonance??
>
> Cecil Moore wrote:
>
>> Roy Lewallen wrote:
>>
>>> The impedance of the antenna doesn't change with the feed method ...
>>
>>
>> One feed method is center feed. Another feed method is off-center feed.
>> The feedpoint impedance of the antenna changes with position since
>> for 1/2WL, for instance, the net voltage is a sine wave referenced
>> to the center, and the net current is a cosine wave referenced to the
>> center. The feedpoint impedance is approximately sin(x)/cos(x)=tan(x)
>> where 'x' is the number of degrees away from center.
>

1765. Re: 20 Meter Dipole - instant DX!!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 22:49:40 UTC
From: Dan/W4NTI <w4nti@mindNOSPAMATALLspring.com>
Message-ID: <8a5Mf.3299$F56.1837@newsread3.news.atl.earthlink.net>
Source record: 63977

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dtg0ij$1pr$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com...
>
> "Radio TexMex" wrote
>
>> Before someone beats me too it, I've already had somebody point out
> the
>> goofy flaw with my new super awesome 20M dipole. And after doing
> some much
>> needed reading on baluns, I've concluded that the 4:1 balun isn't
> needed.
>>
>> Readers: Please be patient. Learning process taking place here.
>>
> ==
>
> Reading about 4:1 baluns makes one imagine a 4:1 balun is
> cessary - whereas most likely it isn't.
> ----
> Reg.
>
>

Times certainly have changed. I remember as a NOVICE being drilled that a coax fed 1/2 wave dipole will not work on EVEN multiples of the fundamental. Maybe I needed a ANTENNA TUNER, whatever that is.

Not being critical OM, I applaud you for trying to learn instead of spouting garbage from CB. Keep up the good work.

Dan/W4NTI

1766. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 22:59:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pj5Mf.54543$dW3.49725@newssvr21.news.prodigy.com>
Source record: 63979

Roy Lewallen wrote:
> Of course, the feedpoint impedance will
> be different if you choose another feedpoint.

Here is the confusing quotation:

> The impedance of the antenna doesn't change with the feed method
> (assuming of course that it has a single feed point)

A center-fed dipole has a "single feed point". An off-center-fed
dipole has a "single feed point". The feedpoint impedance of the
antenna does indeed change depending upon where that single
feed point is located.
--
73, Cecil http://www.qsl.net/w5dxp

1767. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 22:59:51 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201ob9bjmal91d@corp.supernews.com>
Source record: 63978

Reg Edwards wrote:
> . . .
> The trouble with you experts is that you overcomplicate matters and
> make quite simple, obvious things appear to be mysterious.
> . . .

I recently finished reading Richard Hofstadter's _Anti-Intellectualism in American Life_ (written in 1962, won a Pulitzer prize in 1964), where the author shows in great detail that a general disdain for education, sophistication, and complexity is a very deeply seated American tradition. That general outlook was virtually a basis of the founding of a number of now-mainstream religions, and has had lasting impacts on our educational and political systems. In short, it's a long and dearly held American tradition.

So, Reg, that was a very American thing to say. You'd fit right in here.

Roy Lewallen, W7EL

1768. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:09:48 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201otu23v9lc6e@corp.supernews.com>
Source record: 63980

Ian White GM3SEK wrote:
>
> It was clear enough to everyone else that he wanted to know how to make
> measurements. It was also clear enough for you to declare that
> measurements are not necessary.
>
> Maybe this is a good time to remind you of your own favourite quotation:
>
> >"When you can measure what you are speaking about and express
> >it in numbers you know something about it. But when you cannot
> >measure it, when you cannot express it in numbers, your knowledge
> >is of a meagre and unsatisfactory kind. It may be the beginning of
> >knowledge but you have scarcely in your thoughts advanced to
> >the state of science."
> >
> >William Thomson, Lord Kelvin, 1824-1907.

I recently came across some other notable quotes from Lord Kelvin:

"Radio has no future."
"Heavier than air flying machines are impossible."
"X-rays will prove to be a hoax."

-- quoted in _Unweaving the Rainbow: Science, Delusion, and the Appetite for Wonder_, by noted British writer Richard Dawkins. Dawkins also notes that "William Thompson, first Lord Kelvin, was one of the most distinguished and influential of nineteenth-century British physicists. He was a thorn in Darwin's side because he 'proved', with massive authority but, as we now know, even more massive error, that the earth was too young for evolution to have occurred."

The value of Kelvin's contributions is unquestionable. But even he didn't get it right all the time.

Roy Lewallen, W7EL

1769. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:11:38 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201p1brdalne7a@corp.supernews.com>
Source record: 63981

Robert11 wrote:
> . . .
> In a practical sense, do you experts believe I would see any difference
> between
> 50 or 75 ohm coax for a receive only situation at the 30 MHz and lower
> listening freq's (150 foot coax run) ?

No.

Roy Lewallen, W7EL

1770. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:34:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <IQ5Mf.13599$rL5.7926@newssvr27.news.prodigy.net>
Source record: 63982

Roy Lewallen wrote:
> The value of Kelvin's contributions is unquestionable. But even he
> didn't get it right all the time.

And Roy, allow me to point out, in that respect, you don't
get it right all the time either. I can prove to you that
reflected waves contain joules but you simply refuse to
listen and have "ploinked" me. What really aggravates me
is that when an internet guru, such as yourself (or W8JI)
appears to be on the verge of losing an argument, you simply
kill-file the opponent and refuse to continue the thread.
--
73, Cecil http://www.qsl.net/w5dxp

1771. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:38:53 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns97759FBB130ACspectrumhogstarbandn@198.186.192.196>
Source record: 63983

I'd recommend a good grade RG-6 cable (70ohms) also. Regarding the connectors, why not just use the standard TV F fittings all the way to the Rx. You can put an F to whatever adapter on your Rx. TV cable and fittings are not only cheap, but work quite well.

Ed K7AAT

1772. HAM II Rotor Template ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:40:42 UTC
From: DOUGLAS SNOWDEN <snowden@peoplepc.com>
Message-ID: <_V5Mf.3682$S25.3399@newsread1.news.atl.earthlink.net>
Source record: 63984

Anyone have a template for drilling for a Ham II rotor?
Probably the same as the Ham IV rotor.

Doug N4IJ

1773. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-25 23:52:19 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <HpidnfER2-MycJ3ZRVn-og@comcast.com>
Source record: 63985

Agree! But, the radiation resistance ... ?

Cecil Moore wrote:

> Roy Lewallen wrote:
>
>> Of course, the feedpoint impedance will be different if you choose
>> another feedpoint.
>
>
> Here is the confusing quotation:
>
>> The impedance of the antenna doesn't change with the feed method
>
> > (assuming of course that it has a single feed point)
>
> A center-fed dipole has a "single feed point". An off-center-fed
> dipole has a "single feed point". The feedpoint impedance of the
> antenna does indeed change depending upon where that single
> feed point is located.

1774. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 00:32:35 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201tp5bp9l5j4b@corp.supernews.com>
Source record: 63986

Amos Keag wrote:
> Agree! But, the radiation resistance ... ?
>

The topic of radiation resistance has been pretty much beaten to death on this newsgroup. A groups.google.com search should provide a good evening's reading and entertainment.

In brief, "radiation resistance" is the part of an antenna's impedance which "absorbs" the power actually being radiated. It can be referred to any point on an antenna. At that point, wherever it is, the power radiated is I^2 * Rrad, where I is the current at that point. Kraus generally refers the radiation resistance to the feedpoint; that is, he calls the resistive part of the feedpoint impedance the radiation resistance. In AM broadcasting, where monopoles are often higher than a quarter wavelength, it's common to refer the radiation resistance to a point of maximum current. Either approach is perfectly valid. But it means that you have to be careful to say what you mean when you use the term, particularly if the antenna is longer than a quarter wavelength (monopole) or half wavelength (dipole).

There's a common equation for efficiency, Eff = Rrad / (Rrad + Rloss). When using it, you have to make sure you're referring Rrad and Rloss to the same point. A common error when dealing with folded monopoles is to refer the radiation resistance to the high-impedance, transformed feedpoint, while neglecting to refer the loss resistance to the same point by transforming it. This leads to the erroneous conclusion that folding the element improves efficiency. It doesn't, except that the additional wire surface area reduces the wire loss -- but this isn't usually a significant contribution to the total loss.

So to address the comment --

Changing the feedpoint location can change the current distribution on the antenna. This in turn will change the radiation resistance referred to some fixed point along the antenna, although in most common cases I can think of, it won't be a large change. You could contrive some cases where it would. If you refer the radiation resistance to the feedpoint, that is, define it as being the resistive part of the feedpoint impedance, then changing the feedpoint location can have a major impact on the radiation resistance.

Again, if you want more about the topic, read some of the threads where it's been discussed in more detail.

Roy Lewallen, W7EL

>
> Cecil Moore wrote:
>
>> Roy Lewallen wrote:
>>
>>> Of course, the feedpoint impedance will be different if you choose
>>> another feedpoint.
>>
>>
>> Here is the confusing quotation:
>>
>>> The impedance of the antenna doesn't change with the feed method
>>
>> > (assuming of course that it has a single feed point)
>>
>> A center-fed dipole has a "single feed point". An off-center-fed
>> dipole has a "single feed point". The feedpoint impedance of the
>> antenna does indeed change depending upon where that single
>> feed point is located.
>

1775. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 00:35:48 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201tv5tdocjs8f@corp.supernews.com>
Source record: 63987

Robert11 wrote:
> Hello,
>
> Should have asked this also in my previous post re 50 or 75 ohm coax, but
> I guess it is probably better to start a different thread.
> New at this, so please pardon these very basic type of questions.
>
> For a receiving only application, 30 MHz on down:
> Putting up a new Inverted-L receiving antenna.
>
> Radio, Balun, Lightning Arrestor use the 259 type of plug which I guess is
> nominally for 50 ohm systems.
>
> I can go with 75 ohm BNC connectors for the main coax run, but am pretty
> well stuck with the
> 259 type for the already purchased units I noted above.
>
> Intuitively, I guess I would like (all) 75 ohm connectors if I am using 75
> ohm coax.
>
> But, for 30 MHz and lower listening, would I even notice any difference,
> probably ?

No. You wouldn't even if you were transmitting.

> Is any received signal lost, or reflected back, at these 75-50 ohm junctions
> ?

No significant amount. The length of the discontinuity is extremely short compared to a wavelength, and it's not a terribly bad discontinuity. You'd be hard pressed to measure the difference at HF, even with very good equipment. (Of course, you could see it with a high speed TDR, but that's not an HF measurement.)

Roy Lewallen, W7EL

1776. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 00:47:28 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1201ul29sgamu6b@corp.supernews.com>
Source record: 63988

Owen Duffy wrote:
>
> Beware of having 50 and 75 ohm versions of BNC and like around,
> incorrect pairing risk damage to the female connector. Most 75 ohms
> applications still use 50 ohm BNC connectors, even though 75 ohm
> versions are available.

I keep reading this, and it puzzles me. I have a number of RG-59 patch cables which have 75 ohm BNC connectors fitted (and others with 50 ohm connectors). As far as I can tell with a magnified inspection, the center conductor of the 75 ohm male BNC is the same diameter as it is in a standard 50 ohm BNC. The only apparent difference is that the dielectric around the inside of the outer mating area is much thinner in the 75 ohm connector, and the diameter of the 50 ohm center pin steps up as it enters the solid dielectric at the bottom while the 75 ohm center pin doesn't.

If some 75 ohm BNC connectors have a smaller center pin, then it looks to me like you can't even safely mate a male 75 ohm BNC (of the type I have) with a female 75 ohm BNC (which might be of this other type if it exists).

Does anyone have a drawing or measurements showing that 50 and 75 ohm BNC connectors really have different pin diameters?

I don't know about type N connectors -- I don't think I've ever seen a 75 ohm version.

Roy Lewallen, W7EL

1777. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:19:22 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <svv102h2roo3mmn7k1hk844v373lb1updf@4ax.com>
Source record: 63989

On 25 Feb 2006 23:38:53 GMT, Ed <Huckleberry_REMOVE_@newsguy.com>
wrote:

>
>
> I'd recommend a good grade RG-6 cable (70ohms) also. Regarding the
>connectors, why not just use the standard TV F fittings all the way to the
>Rx. You can put an F to whatever adapter on your Rx. TV cable and
>fittings are not only cheap, but work quite well.

Agreed Ed.

I did see another post that suggested 50 ohms was better and to spend
the money.

The matched line loss of 150' of RG6 at 30MHz is 1.6dB. the MLL of
more expensive RG58C/U is 3.6dB, or the much more expensive RG213 is
1.6dB.

The antenna will not be matched over the whole range, so mismatch
losses will occur with both types of line, and there is no reason to
think that overall spending more money on RG213 with the attendent
loss of flexibility will actually be better.

In this rx only application, especially below 15MHz, even if the RG6
was a few dB worse than 50 ohm line, it would not be worth spending
the money on RG213.

Robert, if you want to bury the RG6, buy the standard grade and fit it
inside 13mm PE irrigation tube for better life.

Owen
--

1778. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:25:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ss7Mf.61076$PL5.49894@newssvr11.news.prodigy.com>
Source record: 63990

Amos Keag wrote:
> Agree! But, the radiation resistance ... ?

Nobody said anything about radiation resistance.
--
73, Cecil http://www.qsl.net/w5dxp

1779. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:27:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uu7Mf.61077$PL5.11460@newssvr11.news.prodigy.com>
Source record: 63991

Dot wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>Simply forget about that worry. PL-259s are not 50 ohms.
>>That's why they are not used at VHF/UHF.
>
> Looked at the back of a 2 meter rig lately?

I should have said they are not used at VHF/UHF by rational
human beings. di-di-di-dit---di-dit.
--
73, Cecil http://www.qsl.net/w5dxp

1780. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:32:21 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <c31202te90rbrs59c5u6n1nfpndk1tim1s@4ax.com>
Source record: 63993

On Sat, 25 Feb 2006 21:31:17 GMT, The Benevolent dbu
<relaxan.d@smeltherose.comm> wrote:

>I am also concerned that the feedline may be causing unbalance condition
>because it is routed straight down perhaps 30 feet from the feedpoint
>then it makes a sharp turn to the shack and at that point it is parallel
>with one leg of the antenna for about 30 feet.

Hi Al,

Too much worry can come from too little problem. You need only ask
yourself does the line inappropriately inject receive signal from the
nulls of your antenna; or do you get RF in the shack? If neither are
a concern, there is certainly nothing worse to worry about.

> It's the only way I can
>do it. I have thought of discarding the multiband doublet for a plain
>dipole with 52 ohm coax. I do like the doublet and my Johnson matchbox,
>besides I can use this antenna on 160 when I route the feedline via a
>knife switch over to my MN2700 and configure it to a inverted L.

Nothing here suggests you change anything.

73's
Richard Clark, KB7QHC

1781. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:33:01 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ee0202dum4btjifo2h4gko8h6chu4v6kk4@4ax.com>
Source record: 63992

On Sat, 25 Feb 2006 16:47:28 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Owen Duffy wrote:
>>
>> Beware of having 50 and 75 ohm versions of BNC and like around,
>> incorrect pairing risk damage to the female connector. Most 75 ohms
>> applications still use 50 ohm BNC connectors, even though 75 ohm
>> versions are available.
>
>I keep reading this, and it puzzles me. I have a number of RG-59 patch

Roy,

I have clear recollection of 75 ohm BNCs (meaning a BNC connector
desiged for 75 ohm through impedance) that were incompatible in days
when I worked in communications facilities that used 75 ohms for IF
(70MHz) and baseband, and 50 ohms for RF (GHz).

However, I note on Amphenol's site:

"Two distinct types of 75 ? BNC's are available, and both mate with
each other and with 50 ? BNC's. Type 1 is designated 75 ? BNC-T1 and
provides constant 75 ? performance with low VSWR DC ï¿½ 4 GHz. Type 2 is
designated 75 ? BNC-T2 and is usable with low reflection DC - 1 GHz.
For applications above 1 GHz, Type 1 is recommended. "

Though it is clear that Amphenol and probably some other manufacturers
produce compatible connectors, I am mindfull of earlier experience,
though I concede that it may have been the result of non standard 75
ohm BNCs.

Owen
--

1782. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 01:35:39 UTC
From: chuck <nospam@nospam.net>
Message-ID: <LB7Mf.3352$F56.423@newsread3.news.atl.earthlink.net>
Source record: 63994

If the antenna system can be satisfactorily matched to the transmitter output impedance, it would seem to matter little whether the feed line currents are balanced, or, if they are not, by how much.

If there are no obvious common mode currents causing problems in the shack, then of what consequence would an imbalance be, other than to modify the radiation pattern, perhaps even beneficially?

Chuck, NT3G

Cecil Moore wrote:
> Big Endian wrote:
>
>> An unbalanced condition would have a meter indication, like current
>> flow? Balanced the meter needle would not move?
>
>
> Yes, for a balanced condition, the meter needle should
> not move.

1783. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:14:22 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <7h3202hofj05os221cd024hm2srjvjq160@4ax.com>
Source record: 63995

On Sat, 25 Feb 2006 16:47:28 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>I don't know about type N connectors -- I don't think I've ever seen a
>75 ohm version.

The 75 ohm version N-type uses a reduced centre pin and I believe they
are incompatible.

Owen
--

1784. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:15:14 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12023pjnigrsldf@corp.supernews.com>
Source record: 63996

Dot wrote:
> On Sat, 25 Feb 2006 21:39:58 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>> Simply forget about that worry. PL-259s are not 50 ohms.
>> That's why they are not used at VHF/UHF.
>
> Looked at the back of a 2 meter rig lately?

I used to have a Motorola UHF (450 MHz) ex-taxicab radio. It used UHF (PL-259/SO-239) connectors.

At very high frequencies where the impedance discontinuity might become noticeable, the resulting reactance can usually be compensated for by slight readjustment of matching networks which are usually present anyway.

UHF connectors are poor for a number of mechanical reasons, but the impedance discontinuity is seldom a problem.

Roy Lewallen, W7EL

1785. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:22:39 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120247hee085k77@corp.supernews.com>
Source record: 63997

Owen Duffy wrote:
> . . .
> In this rx only application, especially below 15MHz, even if the RG6
> was a few dB worse than 50 ohm line, it would not be worth spending
> the money on RG213.
>. . .

I think Owen means, "even if the RG6 was a few dB *lossier*". In receiving applications at HF, added loss (within reason) doesn't translate to any reduction in signal/noise ratio. So one line can be considerably lossier than another without making it even one little bit worse in this application. There's no point in spending extra money on line which won't make any improvement at all on your ability to receive signals. It might, on the other hand, be worthwhile to pay extra for line which will last longer or is more physically rugged. Or it might not.

Roy Lewallen, W7EL

1786. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:30:34 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12024mc203qch0f@corp.supernews.com>
Source record: 63998

chuck wrote:
> If the antenna system can be satisfactorily matched to the transmitter
> output impedance, it would seem to matter little whether the feed line
> currents are balanced, or, if they are not, by how much.
>
> If there are no obvious common mode currents causing problems in the
> shack, then of what consequence would an imbalance be, other than to
> modify the radiation pattern, perhaps even beneficially?

You have to remember that the common mode feedline current doesn't stop at the rig. It continues to the Earth by whatever means are available. So your house wiring, appliance cords, and other odd conductors often become part of your antenna system. These aren't likely to be very efficient radiators. People often go to a lot of trouble to put their antennas high and in the clear. That doesn't make much sense if you're going to have your house do a good part of the radiating.

But you can still talk to lots of stations even if some of your radiating is being done by your feedline and house wiring. And that's enough for a lot of folks.

Roy Lewallen, W7EL

1787. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:50:44 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtr524hhk1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63999

> If the antenna system can be satisfactorily matched to the
transmitter
> output impedance, it would seem to matter little whether the feed
line
> currents are balanced, or, if they are not, by how much.
>
> If there are no obvious common mode currents causing problems in the
> shack, then of what consequence would an imbalance be, other than to
> modify the radiation pattern, perhaps even beneficially?
>
> Chuck, NT3G
==========
I agree with what you say.

But antenna (or line) unbalance and line-to-antenna impedance mismatch
are not entirely independent of each other.

An unbalanced line or antenna causes a small impedance mismatch.
Because it is small is the reason why it very often happens it doesn't
matter very much whether or not a balanced feedline is used.

For example, a coax line can be used quite successfully to feed a
balanced dipole.

And, in practice, no antenna is perfectly balanced about ground.

Reg.

1788. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 02:59:15 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dtr5i3$74f$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 64000

"Roy Lewallen" wrote
> Hopefully, the discussion is helping some of the readers to gain a
> better grasp of the subject matter.
==========

What a forlorn hope!

Novices learn next to nothing. They are unable to sort out a very
small amount of simple wheat from a great amount of over-complicated
chaff.

Reg.

1789. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 03:09:27 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <pf6202ddrr1e0k15vdv0t0a16k4ak1fhio@4ax.com>
Source record: 64001

On Sat, 25 Feb 2006 18:22:39 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Owen Duffy wrote:
>> . . .
>> In this rx only application, especially below 15MHz, even if the RG6
>> was a few dB worse than 50 ohm line, it would not be worth spending
>> the money on RG213.
> >. . .
>
>I think Owen means, "even if the RG6 was a few dB *lossier*". In
>receiving applications at HF, added loss (within reason) doesn't
>translate to any reduction in signal/noise ratio. So one line can be
>considerably lossier than another without making it even one little bit
>worse in this application. There's no point in spending extra money on
>line which won't make any improvement at all on your ability to receive
>signals. It might, on the other hand, be worthwhile to pay extra for
>line which will last longer or is more physically rugged. Or it might not.

Quite.

The chart at http://www.vk1od.net/bpl/AreYouReady.htm shows that for a
good HF receiver, the ambient galactic noise is more than 10dB above
the rx noise floor. For an older receiver, the rx noise floor might be
10 to 15dB higher. The ambient noise due to man made and atmospheric
sources would be even higher than the galactic noise plotted in the
chart.

Owen
--

1790. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 03:17:03 UTC
From: richardharrison@webtv.net
Message-ID: <12985-44011DAF-575@storefull-3254.bay.webtv.net>
Source record: 64002

Rom, KC7ITM wrote:
"I don`t think I`ve EVER heard anyone call a parallel-tuned circuit antiresonant."

There are many synonyms I am unfamiliar with also, but I`ve heard of antiresonance and used the word. My "Dictionary of Electronics" says:
"Antiresonance - A type of resonance in which a system offers maximum impedance at its resonant frequency."

An antiresonant circuit is defined:
"Antiresonant circuit - A parallel-resonant circuit offering maximum impedance to the series passage of the resonant frequenccy."

A parallel-tuned resonant circuit fits the dictionary definition. It`s a synonym for antiresonant circuit.

Best regards, Richard Harrison, KB5WZI

1791. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 04:43:05 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tlaMf.35358$Jd.28009@newssvr25.news.prodigy.net>
Source record: 64003

chuck wrote:
> If there are no obvious common mode currents causing problems in the
> shack, then of what consequence would an imbalance be, other than to
> modify the radiation pattern, perhaps even beneficially?

The purpose of the antenna is to radiate. The purpose
of the transmission line is to transfer the energy from
the transmitter to the antenna with as little loss as
feasible. How much an antenna system is allowed to
deviate from its purpose is up to the individual. When
I was in high school, I didn't much care about the purpose
of an antenna system and burned a hole in my lip.
--
73, Cecil http://www.qsl.net/w5dxp

1792. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 04:47:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0qaMf.35360$Jd.33591@newssvr25.news.prodigy.net>
Source record: 64004

Richard Harrison wrote:
> An antiresonant circuit is defined:
> "Antiresonant circuit - A parallel-resonant circuit offering maximum
> impedance to the series passage of the resonant frequenccy."

The traps in a trapped dipole are antiresonant.
--
73, Cecil http://www.qsl.net/w5dxp

1793. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 06:56:07 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <xhcMf.1638$Uc2.168@fed1read04>
Source record: 64005

"Dot" <dot@dot.dot> wrote in message
news:rjh10251g328fp0l057uj3nj3jm0402f25@4ax.com...
> On Sat, 25 Feb 2006 19:23:16 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>
> >It turned out that my neighbor had very sensitive ears and could hear
> >my microphone voice through the walls of our adjoining houses.
>
> And how much louder tha normal is your microphone voice that he would
object
> to it but not your conversational voice?
>
> IOW... this sounds like a problem that'd been brewing for quite some time.
>

Some guy in Florida killed a noisy neighbor this week.
http://www.wftv.com/irresistible/7359552/detail.html

Digital modes are so-o-o nice and quiet!

1794. Re: 50 Or 75 Ohm Coax For Receive Only Application ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 07:33:38 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <IQcMf.1645$Uc2.1385@fed1read04>
Source record: 64006

"Robert11" <rgsros@notme.com> wrote in message
news:V_ednWRHBpRDPZ3Z4p2dnA@comcast.com...
> Hello:
>
> Will be putting up a new HF atnenna for Receive-Only, to be used from 30
MHz
> on down
>
> Trying to decide on a coax type for the radio to antenna run, about 150
> feet.
>
> As some will be buried in soil, want to have a PE jacket.
>
> It appears that when factoring in the PE requirement, and certainly price,
I
> can
> do better, apparently, by picking a 75 ohm coax than a 50 ohm one.
>
> My receivers input is, of course, stamped 50 ohm.
>
> In a practical sense, do you experts believe I would see any difference
> between
> 50 or 75 ohm coax for a receive only situation at the 30 MHz and lower
> listening freq's (150 foot coax run) ?
>
> Thanks,
> Bob
>
>
1. The 50-ohm rating is nominal. I suspect it's all over the map as you
tune around.

2. The mismatch loss going from 75 to 50 ohm impedance is only about
a dB. So, unless you're doing FM, there's little chance that you could ever
hear 1dB (and you'd only hear it on FM if you were right at the "edge").

1795. Re: ?? anyone have plans on how to build a usb gps antenna for laptop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 08:47:11 UTC
From: Lee <lo012a4519@blueyonder.co.uk>
Message-ID: <jWdMf.61595$DM.55821@fe3.news.blueyonder.co.uk>
Source record: 64007

```
"Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
news:beTLf.1206$Uc2.194@fed1read04...
>
> "Lee" <lo012a4519@blueyonder.co.uk> wrote in message
> news:KIzLf.48616$Q22.34001@fe1.news.blueyonder.co.uk...
> >
> > "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> > news:MebLf.968$Uc2.471@fed1read04...
> > >
> > > "Lee" <lo012a4519@blueyonder.co.uk> wrote in message
> > > news:rXUKf.31812$Q22.24541@fe1.news.blueyonder.co.uk...
> > > > >
> > > > "Sal M. Onella" <salmonella@food.poisoning.org> wrote in message
> > > > news:RUSKf.130$Uc2.57@fed1read04...
> > > > > >
> > > > > <someone@somedomain.com.invalid> wrote in message
> > > > > news:IyQKf.18144$Ug4.11471@dukeread12...
> > > > > > >
> > > > > > > >
> > > > > > > >
> > > > > > http://64.71.184.220/eng/gpspatch.txt
> > > > > >
> > > > > > http://www.arrl.org/tis/info/pdf/0210036.pdf
> > > > > >
> > > > > > http://vancouver-webpages.com/peter/gpspatch.gif
> > > > >
> > > > Any more designs to suit a Garmin 310 ???
> > > >
> > > Lee .....G6ZSG.....
> > > >
> > > >
> > >
> > Lee,
> > >
> > > These are free-space antennas, intended for fitting with a length of
> coax
> > > terminated in the particular connector that mates with the connector
on
> > your
> > > GPS rcvr. My Garmin GPS-III takes a BNC and I have my patch antenna
> > mounted
> > > on my van's luggage rack; Eight feet of coax brings the signal inside.
> >
> > Not too sure what i want, i`m a bit of a newb to GPS....just bought
```

> it!!!...
> >
> > > Not familiar with the 310 -- are you looking for an add-on antenna
that
> > > physically mounts to your 310? ... or does the 310 require a special
> > > coupling technique (non-connector)?
> >
> > Same as the 320,330 and 340 series
> >
> > Lee.......G6ZSG.......
> >
> >
> My external antennas are all non-specific to the brand and model of
> consumer-grade GPS receivers (those using only the L1 signal). The
> connection method varies among receivers.
>
> If you are buying an antenna, here is Garmin's web link to the manual:
> http://www.garmin.com/manuals/StreetPilotc310_OwnersManual.pdf
>
> See page 26 for a mention of the GA27C antenna. Of course, it comes
> with the cable end being the right connector (MCX) for your receiver.
> Hunt in your manual if the pages don't match the one I found online.
>
> If you are making your own antenna from plans I linked to, you will need
> to also buy a type MCX connector for the cable end, as that is the
connector
> type specified here:
> http://www.garmin.com/products/sp330/spec.html (which is the link from
> page 26 in the manual.)
>
> www.jameco.com sells MCX connectors, but if you google for "MCX connector"
> (with the quotes) you will get not only sources for the connector but also
> quite
> a few third-party vendors with ready-built GPS antennas using that
> connector.
> You are apparently in a large group of Garmin users who want an external
> antenna.

Thanks.

Lee.......G6ZSG......

1796. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 09:21:35 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-2EE103.03212826022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64008

In article <12024mc203qch0f@corp.supernews.com>,
Roy Lewallen <w7el@eznec.com> wrote:

> chuck wrote:
> > If the antenna system can be satisfactorily matched to the transmitter
> > output impedance, it would seem to matter little whether the feed line
> > currents are balanced, or, if they are not, by how much.
> >
> > If there are no obvious common mode currents causing problems in the
> > shack, then of what consequence would an imbalance be, other than to
> > modify the radiation pattern, perhaps even beneficially?
>
> You have to remember that the common mode feedline current doesn't stop
> at the rig. It continues to the Earth by whatever means are available.
> So your house wiring, appliance cords, and other odd conductors often
> become part of your antenna system. These aren't likely to be very
> efficient radiators. People often go to a lot of trouble to put their
> antennas high and in the clear. That doesn't make much sense if you're
> going to have your house do a good part of the radiating.
>
> But you can still talk to lots of stations even if some of your
> radiating is being done by your feedline and house wiring. And that's
> enough for a lot of folks.
>
> Roy Lewallen, W7EL

I'm always concerned about TVI and telephone I. and that is another
reason I hope to have my feeders balanced, so they radiate minimum RF.
I was using a field strength meter while I had the transmitter going the
other day and working the antenna along some table lamps and the
electrical wire I found the F.S. meter would jump up quite a bit. So
what you say about re-radiating house wiring is surely true.

1797. need help with H antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 09:43:07 UTC
From: Jim <jbasi@cfw.com>
Message-ID: <a7d80$4400dc75$d80c3807$22503@NAXS.COM>
Source record: 64125

I need help in building an H type of tracking antenna for use around 166-167 mhz. This is for wildlife tracking. I have a couple of handheld 3 element Yagi's that I built using YagiCad to do the math, and they work well, but they are big and clunky.

There are times when I am willing to sacrifice the good f/b ratio of the yagi for convienience, for instance when working in brushy woods. I have used an H for tracking at 151 mhz, but of course, I can't use that one for 166.

My tracking receiver, a King portable, has a BNC connector, so I can interchange antennas quickly.

Is there a web page or magazine article that can help me design my H, or can someone share their experience?

Thanks
Jim

1798. The DELTA LOOP Antenna calculator is now online !

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 11:31:50 UTC
From: oli <oli004@wanadoo.fr>
Message-ID: <440191af$0$20142$8fcfb975@news.wanadoo.fr>
Source record: 64009

Good morning to all,

I am happy to announce you that I have put online the DELTA LOOP Antenna calculator

on the antenna web site.

You just have to give the work frequency between 26 to 30 MHz and the number of

elements that you want and the site calculate automatiquely all dimensions and

spacings.

I invite you to try it at :

http://www.antenna-street.com/delta-loop-1en.php

If you have questions or want to speake about, you could use the dedicated forum :

http://www.antenna-street.com/viewtopic.php?t=16

best regards

Oli004

www.antenna-street.com

www.photomontages.org

1799. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 16:06:16 UTC
From: chuck <nospam@nospam.net>
Message-ID: <YlkMf.3565$F56.3270@newsread3.news.atl.earthlink.net>
Source record: 64010

Thanks for the responses.

Put differently, I guess the purpose of the entire station is to radiate and intercept radiated waves containing information. I was trying to explore the benefits and consequences of preventing transmission line radiation as they relate to this more global purpose.

While it is clear that maintaining balance in the line will prevent radiation from the line, some (maybe all) of the radiation prevented might have contributed to the global purpose of the station. For example, radiation from common-mode currents in a vertical transmission line could produce beneficial low-angle, omnidirectional radiation, as has been pointed out often on the group.

It would seem that for the common-mode transmission line currents the antenna system would look like a top-loaded vertical, ignoring the balanced line currents and their interaction with the horizontal portion of the antenna.

The efficiency of the vertically polarized radiation from the line would depend heavily on the station's RF ground system. But basically we would have (for the common-mode currents) a conventional vertical antenna with all its attendant plusses and minuses.

To the extent the AC grounding conductor in the house presents a lower impedance than the station's RF grounding system, we would expect to see displacement currents in the AC system, just as with an "ordinary" vertical using a poor RF ground.

Coupling to the telephone wires also would seem to be a consequence of a vertical radiator with a poor RF ground, rather than a consequence of transmission line imbalance (which I understand is the cause of the radiation in the first place).

So here is my main question: do we object to the vertical radiation per se (i.e., if we wanted vertically polarized radiation, we would have put up a vertical in the first place), or is radiation from an unbalanced line somehow more insidious in that it causes other problems that "ordinary" verticals do not cause? In other words, why do we really care about imbalance?

Reg has called attention to another of my shortcomings: I have no idea how the common-mode line currents that enter a link in the tuner are seen and "processed" by the tuner. It would seem that the link appears as one plate of a capacitor for those currents.

Thanks again for everyone's patience.

Chuck, NT3G

Cecil Moore wrote:
> chuck wrote:
>
>> If there are no obvious common mode currents causing problems in the
>> shack, then of what consequence would an imbalance be, other than to
>> modify the radiation pattern, perhaps even beneficially?
>
>
> The purpose of the antenna is to radiate. The purpose
> of the transmission line is to transfer the energy from
> the transmitter to the antenna with as little loss as
> feasible. How much an antenna system is allowed to
> deviate from its purpose is up to the individual. When
> I was in high school, I didn't much care about the purpose
> of an antenna system and burned a hole in my lip.

1800. Re: nec simulation - unexpected result ??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 16:16:40 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <c5k302lr97svnus2i1npj90hqit5d9noaf@4ax.com>
Source record: 64011

On Sat, 25 Feb 2006 21:17:03 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Rom, KC7ITM wrote:
>"I don`t think I`ve EVER heard anyone call a parallel-tuned circuit
>antiresonant."
>
>There are many synonyms I am unfamiliar with also, but I`ve heard of
>antiresonance and used the word. My "Dictionary of Electronics" says:
>"Antiresonance - A type of resonance in which a system offers maximum
>impedance at its resonant frequency."
>
>An antiresonant circuit is defined:
>"Antiresonant circuit - A parallel-resonant circuit offering maximum
>impedance to the series passage of the resonant frequenccy."
>
>A parallel-tuned resonant circuit fits the dictionary definition. It`s a
>synonym for antiresonant circuit.
>
>Best regards, Richard Harrison, KB5WZI

When speaking of quartz crystals, antiresonant is a commonly used term.

1801. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 17:09:02 UTC
From: chuck <nospam@nospam.net>
Message-ID: <OglMf.3597$F56.3051@newsread3.news.atl.earthlink.net>
Source record: 64012

Please change my reference to a "link" in the tuner to the symmetrical taps on the inductor in the tuner. Sorry. I still have the same conceptual problem with common-mode currents entering that inductor.

Chuck, NT3G

1802. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 17:29:28 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9776608B81884doldridgsprintca@64.59.135.159>
Source record: 64013

"Robert11" <rgsros@notme.com> wrote in
news:_rOdndQpXOwhI53ZnZ2dnUVZ_sGdnZ2d@comcast.com:

> Hello,
>
> Should have asked this also in my previous post re 50 or 75 ohm coax,
> but I guess it is probably better to start a different thread.
> New at this, so please pardon these very basic type of questions.
>
> For a receiving only application, 30 MHz on down:
> Putting up a new Inverted-L receiving antenna.
>
> Radio, Balun, Lightning Arrestor use the 259 type of plug which I
> guess is nominally for 50 ohm systems.
>
> I can go with 75 ohm BNC connectors for the main coax run, but am
> pretty well stuck with the
> 259 type for the already purchased units I noted above.
>
> Intuitively, I guess I would like (all) 75 ohm connectors if I am
> using 75 ohm coax.
>
> But, for 30 MHz and lower listening, would I even notice any
> difference, probably ?
>
> Is any received signal lost, or reflected back, at these 75-50 ohm
> junctions ?
> If meaningful, any way around the problem ?

Most HF receivers have plenty of sensitivity and most HF bands that would be of interest (with the possible exception of 10-11m) are noisy enough that a lossy antenna is not a huge problem unless the losses are really large. 10db is quite tolerable in most equipment.

Of course, for transmitting you want as little loss as possible.

--
Dave Oldridge+
ICQ 1800667

1803. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 17:48:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nRlMf.16689$2O6.11340@newssvr12.news.prodigy.com>
Source record: 64014

chuck wrote:
> So here is my main question: do we object to the vertical radiation per
> se ...?

Maybe an example would help. I model a dipole until
I am happy with the results predicted by EZNEC. The
take-off-angle is perfect for my schedule to AZ.
EZNEC assumes no feedline radiation. I am sloppy
about putting my dipole in the air and lots of feedline
radiation results which goes off in directions not
predicted by EZNEC. Murphey's Law predicts that the
unknown directions will be bad (entropy never
decreases). Besides, half of my feedline is routed
horizontal under the eaves of my house.

So would you rather deal with the devil you know or
trust the angel that you don't know? Does the angel
that you are trusting really understand entropy?
--
73, Cecil http://www.qsl.net/w5dxp

1804. Re: Alternatives...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 19:17:42 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <q9nMf.103$Bj7.50@newsread2.news.pas.earthlink.net>
Source record: 64015

Bottom posted...

"Cecil Moore" <mycall@arrl.net> wrote in message
news:nRlMf.16689$2O6.11340@newssvr12.news.prodigy.com...
> chuck wrote:
> > So here is my main question: do we object to the vertical radiation per
> > se ...?
>
> Maybe an example would help. I model a dipole until
> I am happy with the results predicted by EZNEC. The
> take-off-angle is perfect for my schedule to AZ.
> EZNEC assumes no feedline radiation. I am sloppy
> about putting my dipole in the air and lots of feedline
> radiation results which goes off in directions not
> predicted by EZNEC. Murphey's Law predicts that the
> unknown directions will be bad (entropy never
> decreases). Besides, half of my feedline is routed
> horizontal under the eaves of my house.
>
> So would you rather deal with the devil you know or
> trust the angel that you don't know? Does the angel
> that you are trusting really understand entropy?
> --
> 73, Cecil http://www.qsl.net/w5dxp

That's a fair question; but here are a few more:

If you have X amount of time available to fuss around trying to
minimize feedline radiation, might you rather spend that time:
1. Having more or longer QSOs with your AZ friend?
2. Working a little DX?
3. Improving your audio?
4. Watching a movie?
5. Making whoopie with the XYL?
6. Any number of other possibilities?

Disclaimer: Nothing should be inferred from the (more-or-less
random) order of the above list. ;-)

73, Ed

1805. Re: Alternatives...

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-26 21:24:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Q%oMf.25308$_S7.14157@newssvr14.news.prodigy.com>
Source record: 64016

Old Ed wrote:
> That's a fair question; but here are a few more:
>
> If you have X amount of time available to fuss around trying to
> minimize feedline radiation, might you rather spend that time:

If one follows good engineering practice, it becomes second
nature after awhile and consumes only a negligible amount
of time which is usually more than worth it. If it takes
someone more time to learn about feedline radiation than
they are willing to spend, well then what-the-hell,
ignorance is bliss.

> 1. Having more or longer QSOs with your AZ friend?

We run out of things to talk about as it is.

> 2. Working a little DX?

Most of them don't speak Texan.

> 3. Improving your audio?

I'm already famous for my audio. I do a mean Johnny Cash.
I'm also not bad at Elvis. I'm lead bass in the church
choir. They call me the "largemouth bass".

> 4. Watching a movie?

The last movies that I really enjoyed were "Patton" and
"Alien". Most movies put me to sleep (which is not a bad
thing). If you enjoy homosexual sheephearders - well,
it takes all kinds.

> 5. Making whoopie with the XYL?

Divorced in 1984 - I wish it had been sooner.

> 6. Any number of other possibilities?

I do have a part time teaching job and I like riding
my Harley. I also just spent about three hours getting
my birdhouse ready for the Purple Martins that are
returning from Brazil to nest in East Texas. The fact
that I am posting to this newsgroup at this time means
that I don't have anything interesting or productive
to do. :-)
--

73, Cecil http://www.qsl.net/w5dxp

1806. antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 03:22:57 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <WJ-dnc6gp48L7Z_Z4p2dnA@comcast.com>
Source record: 64017

All,

This is an attempt to add loaded radials to a loaded vertical. The plan is to make a large efficient loading coil for the radials and offset the variable coil in a 'screwdriver' vertical segment.

The antenna is about 4 meters overall with about an load at about 1.5 meters from the base. The antenna is raised about a meter.

The loaded radials are two 1 inch copper tubes about 1.67 meters long. The radial loading coil is connected from the coax shield to the radial coil.

The feed is 50 Ohm coax, the shield is connected to the loading coil and the center to the base.

4nec2 predicts an impedance of between 10 and 20 ohms depending of the assumed values of R in the impedance loads. The actual antenna measures 36 Ohms at the feed.

The question is: What is the basis of the difference between predicted and measured values?

Below is a representation of the nec code used to simulate the antenna.

Thanks - Dan

```
CM 75 m Vertical 12 ft high
CM base 3 ft up - two radials
CM copper conductivity
CE
GW 1 11 0 0 1 0 0 5 0.025
GW 2 7 0 0 1 0 1.67 1 0.025
GW 3 7 0 0 1 0 -1.67 1 0.025
GE 0
LD 4 1 1 1 5 1500
LD 4 1 6 6 8 600
EX 0 1 2 0 1 0
GN 2 0 0 0 13 5.e-3
FR 0 1 0 0 3.74 0
EN
```

1807. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 03:43:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1204taq72kips40@corp.supernews.com>
Source record: 64018

chuck wrote:
> . . .
> So here is my main question: do we object to the vertical radiation per
> se (i.e., if we wanted vertically polarized radiation, we would have put
> up a vertical in the first place), or is radiation from an unbalanced
> line somehow more insidious in that it causes other problems that
> "ordinary" verticals do not cause? In other words, why do we really care
> about imbalance?
>. . .

Would you intentionally load up your house wiring an use it as an antenna?

Roy Lewallen, W7EL

1808. Re: HAM II Rotor Template ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 04:46:41 UTC
From: W2RAC <w2racNOSPAM@cfl.rr.com>
Message-ID: <ks05021lecubajo2sbjeb14ss9do45vihg@4ax.com>
Source record: 64019

try this address
bama.sbc.edu/downloads/cde
There is a copy of the owners manual.
If you cant get to it I email me and I will zip it to you.

On Sat, 25 Feb 2006 23:40:42 GMT, "DOUGLAS SNOWDEN"
<snowden@peoplepc.com> wrote:

>Anyone have a template for drilling for a Ham II rotor?
>Probably the same as the Ham IV rotor.
>
>Doug N4IJ
>

1809. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 05:58:28 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <8ywMf.8215$vC4.4087@clgrps12>
Source record: 64020

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:WJ-dnc6gp48L7Z_Z4p2dnA@comcast.com...
> All,
>
> This is an attempt to add loaded radials to a loaded vertical. The plan is
> to make a large efficient loading coil for the radials and offset the
> variable coil in a 'screwdriver' vertical segment.
>
> The antenna is about 4 meters overall with about an load at about 1.5
> meters from the base. The antenna is raised about a meter.
>
> The loaded radials are two 1 inch copper tubes about 1.67 meters long. The
> radial loading coil is connected from the coax shield to the radial coil.
>
> The feed is 50 Ohm coax, the shield is connected to the loading coil and
> the center to the base.
>
> 4nec2 predicts an impedance of between 10 and 20 ohms depending of the
> assumed values of R in the impedance loads. The actual antenna measures 36
> Ohms at the feed.
>
> The question is: What is the basis of the difference between predicted and
> measured values?
>
> Below is a representation of the nec code used to simulate the antenna.
>
> Thanks - Dan
>
> CM 75 m Vertical 12 ft high
> CM base 3 ft up - two radials
> CM copper conductivity
> CE
> GW 1 11 0 0 1 0 0 5
> 0.025
> GW 2 7 0 0 1 0 1.67 1
> 0.025
> GW 3 7 0 0 1 0 -1.67 1
> 0.025
> GE 0
> LD 4 1 1 1 5 1500
> LD 4 1 6 6 8 600
> EX 0 1 2 0 1 0
> GN 2 0 0 0 13 5.e-3
> FR 0 1 0 0 3.74 0

> EN

Interesting Dan, I get the same results as you, using your code. At 3.74 MHz the input z is 16.8 +j133. The antenna is resonant at about 3.55 MHz. With your average ground the gain is about -9 dBi.

The only question I have is how certain are you of the accuracy of your test equipment? Did you use a 1:1 balun at the feed point? You may be getting a large current on the outside of the coax.

Frank

1810. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 06:58:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12058okq4o35l22@corp.supernews.com>
Source record: 64021

dansawyeror wrote:
> . . .
> The question is: What is the basis of the difference between predicted
> and measured values?

1. Have you decoupled your feedline? If you're not using a feedline,
have you decoupled your measurement device?

2. Have you substituted a lumped impedance of about 16 + j133 ohms for
the antenna and observed what your measurement equipment indicates?

Roy Lewallen, W7EL

1811. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 12:11:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <80CMf.35606$Jd.5433@newssvr25.news.prodigy.net>
Source record: 64022

dansawyeror wrote:
> 4nec2 predicts an impedance of between 10 and 20 ohms depending of the
> assumed values of R in the impedance loads. The actual antenna measures
> 36 Ohms at the feed.
>
> The question is: What is the basis of the difference between predicted
> and measured values?

Does 4nec2 include the ground losses in the feedpoint impedance?
--
73, Cecil http://www.qsl.net/w5dxp

1812. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 13:21:34 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <y1DMf.7058$M52.5394@edtnps89>
Source record: 64023

"Cecil Moore" <mycall@arrl.net> wrote in message
news:80CMf.35606$Jd.5433@newssvr25.news.prodigy.net...
> dansawyeror wrote:
>> 4nec2 predicts an impedance of between 10 and 20 ohms depending of the
>> assumed values of R in the impedance loads. The actual antenna measures
>> 36 Ohms at the feed.
>>
>> The question is: What is the basis of the difference between predicted
>> and measured values?
>
> Does 4nec2 include the ground losses in the feedpoint impedance?
> --
> 73, Cecil http://www.qsl.net/w5dxp

4nec2 does have Sommerfeld/Norton. Incidentally my NEC2 gives 15.7 + j
110.6. The 15.8 + j133 comes from NEC 4.1.

Frank

1813. Ladder line supports.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 13:58:43 UTC
From: Eskay <siebklaasNO@SPAMhotmail.com>
Message-ID: <7ekv2ysr2oel.1tn134dbykemn.dlg@40tude.net>
Source record: 64024

In another newsgroup mention is made of a handy ladderline support.
Would like to know where these items were originally made for?
Farm electric fencing?
http://www.dxengineering.com/images/examples/LL_Insulator_Install.jpg
Thanks,,,Eskay.

1814. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 14:29:47 UTC
From: chuck <nospam@nospam.net>
Message-ID: <v1EMf.4919$5M6.2285@newsread2.news.atl.earthlink.net>
Source record: 64025

Of course not, Roy. I sure hope what I wrote did not suggest otherwise. But I am trying to learn exactly which properties of an antenna system cause house wiring to be "loaded up."

In particular, I am trying to establish whether a top-loaded vertical with the same wire geometry and RF ground as the open-wire transmission line-fed dipole would be just as likely to cause undesirable coupling to the house wiring. It seems to me that it is. If it is not, I'm trying to understand why not.

In other words, is the problem transmission line unbalance, or simply having a radiator with undesirable proximity to house wiring?

One more way to word the question: if you tie the open-wire lines together at the tuner/transmitter and feed the antenna as a vertical, all of the current in the line will be common-mode. Would that be less likely to cause undesirable coupling than the exact same antenna with transmission line unbalance.

I am not advocating unbalanced transmission lines, verticals, or the pursuit of radiation patterns one knows in advance to be undesirable.

I apologize for my prolix and obtuse approach, but I'm not sure how to pose the question properly. I'll try to work on that.

Thanks again.

Chuck

Roy Lewallen wrote:
> chuck wrote:
>
>> . . .
>> So here is my main question: do we object to the vertical radiation
>> per se (i.e., if we wanted vertically polarized radiation, we would
>> have put up a vertical in the first place), or is radiation from an
>> unbalanced line somehow more insidious in that it causes other
>> problems that "ordinary" verticals do not cause? In other words, why
>> do we really care about imbalance?
>
> >. . .
>
> Would you intentionally load up your house wiring an use it as an antenna?
>
> Roy Lewallen, W7EL

1815. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 14:39:49 UTC
From: chuck <nospam@nospam.net>
Message-ID: <VaEMf.4924$5M6.4688@newsread2.news.atl.earthlink.net>
Source record: 64026

As a follow-up, is there a practical way to determine how much current unbalance will cause a one dB reduction in power delivered to the antenna, the "lost power" being that power radiated by the transmission line?

It seems like a rather complex modeling problem.

Thanks!

Chuck, NT3G

ig Endian wrote:
> How does one check the balance between two parallel feed wires into a
> doublet antenna. Neon bulbs or some sort of meter gizmo?
>
> tnx
>
> d

1816. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 14:44:01 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <44031031.9050905@comcast.net>
Source record: 64027

Roy,

No I have not decoupled the feed from the antenna. I will try that tonight. I have wound a 2:1 balun for testing. (anticipating at least a 25 ohm input impedance)

I have measured the antenna with two different instruments. One is an Autek analyzer at the antenna, the second is with an 8405a at the end of 100+ feed of cable. They both show the same results.

Thanks - Dan

Roy Lewallen wrote:
> dansawyeror wrote:
>
>> . . .
>> The question is: What is the basis of the difference between predicted
>> and measured values?
>
>
> 1. Have you decoupled your feedline? If you're not using a feedline,
> have you decoupled your measurement device?
>
> 2. Have you substituted a lumped impedance of about 16 + j133 ohms for
> the antenna and observed what your measurement equipment indicates?
>
> Roy Lewallen, W7EL

1817. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 15:51:32 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <8eFMf.6418$dg.3208@clgrps13>
Source record: 64028

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:44031031.9050905@comcast.net...
> Roy,
>
> No I have not decoupled the feed from the antenna. I will try that
> tonight. I have wound a 2:1 balun for testing. (anticipating at least a 25
> ohm input impedance)
>
> I have measured the antenna with two different instruments. One is an
> Autek analyzer at the antenna, the second is with an 8405a at the end of
> 100+ feed of cable. They both show the same results.
>
> Thanks - Dan

Dan, I notice the Autek analyzer only measures the magnitude of the impedance. With any of these lower cost instruments it is impossible to find any accuracy specifications. The 8405A is an excellent instrument, but assume you calibrated it -- short/open/load -- at the end of the 100 ft cable. This calibration should also be carried out on the antenna side of your isolation transformer when you install it. Curious as to what kind of directional coupler you are using for HF. I remember using a small HP coupler for HF, but cannot remember its model number.

Frank

1818. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 17:47:10 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <m5e6025qp7iv8cto57r3a4v7afjgunhu0r@4ax.com>
Source record: 64029

On Mon, 27 Feb 2006 14:29:47 GMT, chuck <nospam@nospam.net> wrote:

>One more way to word the question: if you tie the open-wire lines
>together at the tuner/transmitter and feed the antenna as a vertical,
>all of the current in the line will be common-mode. Would that be less
>likely to cause undesirable coupling than the exact same antenna with
>transmission line unbalance.

Hi Chuck,

When you tie them together, you have to be referencing that "common"
lead to something. Usually that something is ground. Common Mode
current springs into existence by definition.

Where did ground come into the picture? Usually through the power
supply. The power supply gets it from the mains, and thus you see the
origin of getting RF into the house.

I wrote earlier about how a religious devotion to balancing an
antenna/feed can be easily disturbed when you connect your line to the
rig. The rig has a ground connection even if you didn't drive a
ground rod specifically for it, nor purposely establish a ground path.

Some might think that their tuner isolates their twin line feed from
ground. I seriously doubt that is true. Most tuners I've seen use a
voltage BalUn which design violates that form of isolation, or turns
the core into a heating element, or both. Even link tuners have the
prospects of not having a truly balanced connection. I would say the
prospects are much better, as the designers were working toward that
goal, but it is not always achieved.

73's
Richard Clark, KB7QHC

1819. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 18:44:07 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1206i3qqmrurb42@corp.supernews.com>
Source record: 64030

The first thing I'd try, then, would be to put a 1:1 balun (common mode choke) at the feedpoint and, when using feedline, a second one about a quarter wave down the line. The balun can be constructed by winding the coax (if you're using RG-58 or smaller) 8 - 10 turns on a type 43 ferrite core. Or you can clamp or thread a few large cores over the coax. You can use the Autek to measure the core impedance -- shoot for 500 - 1000 ohms total -- the angle of the impedance isn't important. Unlike the 2:1 balun, this won't disturb your basic measurement in any way, it'll just reduce any common mode current.

If you still get the same result, then there are only two other possible causes I can think of. One is the modeling of the inductors. I've found that a lumped model of an inductor isn't good if there's any appreciable current change in the real inductor from one end to the other due to its physical length. The solution is to model the inductor as a helix. You'll have to add some extra R to the model, however, if the turns are spaced closer than a couple of wire diameters, since the program doesn't account for proximity effect.

The other possible cause is that there's some source of loss you're not accounting for in your model. The inductors and coupling to nearby lossy objects are the most obvious candidates.

Roy Lewallen, W7EL

dansawyeror wrote:
> Roy,
>
> No I have not decoupled the feed from the antenna. I will try that
> tonight. I have wound a 2:1 balun for testing. (anticipating at least a
> 25 ohm input impedance)
>
> I have measured the antenna with two different instruments. One is an
> Autek analyzer at the antenna, the second is with an 8405a at the end of
> 100+ feed of cable. They both show the same results.
>
> Thanks - Dan
>
> Roy Lewallen wrote:
>> dansawyeror wrote:
>>
>>> . . .
>>> The question is: What is the basis of the difference between
>>> predicted and measured values?
>>

>>
>> 1. Have you decoupled your feedline? If you're not using a feedline,
>> have you decoupled your measurement device?
>>
>> 2. Have you substituted a lumped impedance of about 16 + j133 ohms for
>> the antenna and observed what your measurement equipment indicates?
>>
>> Roy Lewallen, W7EL

1820. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 18:47:59 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1206ib348gjnb4@corp.supernews.com>
Source record: 64031

Frank's wrote:
>
> Dan, I notice the Autek analyzer only measures the magnitude of the
> impedance. With any of these lower cost instruments it is impossible to
> find any accuracy specifications. The 8405A is an excellent instrument, but
> assume you calibrated it -- short/open/load -- at the end of the 100 ft
> cable. This calibration should also be carried out on the antenna side of
> your isolation transformer when you install it. Curious as to what kind of
> directional coupler you are using for HF. I remember using a small HP
> coupler for HF, but cannot remember its model number.
>
> Frank

Hm, if the Autek measures only the magnitude of the impedance, how does
Dan know the resistance? The model shows about 133 ohms of reactance,
which is much greater than the resistance.

Roy Lewallen, W7EL

1821. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 19:04:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1206j98slafj4a@corp.supernews.com>
Source record: 64032

chuck wrote:
> Of course not, Roy. I sure hope what I wrote did not suggest
> otherwise. But I am trying to learn exactly which properties of an
> antenna system cause house wiring to be "loaded up."
>
> In particular, I am trying to establish whether a top-loaded vertical
> with the same wire geometry and RF ground as the open-wire
> transmission line-fed dipole would be just as likely to cause
> undesirable coupling to the house wiring. It seems to me that it is.
> If it is not, I'm trying to understand why not.

When you have common mode current, it not only flows on the feedline, but continues to ground via whatever path it can. And this is usually the house wiring. So your antenna now consists of the "antenna", the feedline, and the house wiring. The problem here is current in house wiring due to conduction, not coupling.

If you properly feed a vertical, no RF current is conducted to the house wiring. Either a properly fed vertical or a radiating feedline can induce current in the house wiring by coupling, but the amount will depend on (among other things) proximity of the antenna or feedline to the house. Most of us can put a vertical at least a little distance from the house, but the feedline has to come right in.

> In other words, is the problem transmission line unbalance, or simply
> having a radiator with undesirable proximity to house wiring?

Again, the problems are twofold. One is conducted current, and the other is coupled current due to proximity.

> One more way to word the question: if you tie the open-wire lines
> together at the tuner/transmitter and feed the antenna as a vertical,
> all of the current in the line will be common-mode. Would that be
> less likely to cause undesirable coupling than the exact same antenna
> with transmission line unbalance.

You would have exactly the same problems in either case, assuming a worst case of imbalance when feeding the antenna normally (which isn't likely). Whatever current leaves the rig via the connected-together feedline conductors (or via common mode current in a normally fed antenna), an equal amount of current has to leave the rig via its chassis or "ground" connection. In a properly fed vertical, this current ends up in the ground system at the base of the antenna. In the tied-together feed, it'll end up getting to ground however it can, radiating and inducing other currents along the way.

> . . .

Roy Lewallen, W7EL

1822. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 19:16:01 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1206jvk3rsclp55@corp.supernews.com>
Source record: 64033

chuck wrote:
> As a follow-up, is there a practical way to determine how much current
> unbalance will cause a one dB reduction in power delivered to the
> antenna, the "lost power" being that power radiated by the transmission
> line?
>
> It seems like a rather complex modeling problem.
>
> Thanks!
>
> Chuck, NT3G

Nope. You can't generally say that one part of an antenna is radiating a particular amount of the total power. Each part of the antenna creates a field, and it interacts with the fields from all other parts of the antenna. The total power radiated has to equal the total power input less loss, but that's all you can say for sure. An example will help illustrate the problem. Consider a parasitic element in a Yagi. It has considerable current and contributes a great deal to the overall pattern. Yet the total power input to the Yagi element is zero. With zero power input, it can't, by itself, be radiating any power. What it does is intercept some of the power radiated by the driven element and re-radiates it with a different phase and amplitude. So how would you apportion the power radiated by the driven element and the parasitic element?

You might take a look at the current in the driven element and note that it increases or decreases as you put the parasitic element in place and remove it. But the current can either increase or decrease, depending on the length and spacing of the parasitic element. So has the parasitic element increased or decreased the power radiated by the driven element? There's no answer.

You can look at the change in pattern in some idealized cases by modeling. This can tell you what range of effects you might expect in a real situation.

Roy Lewallen, W7EL

1823. Re: Ladder line supports.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 19:29:27 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <7jk602tjuddh9g6683r151skaj4qs4oill@4ax.com>
Source record: 64034

On Mon, 27 Feb 2006 13:58:43 GMT, Eskay <siebklaasNO@SPAMhotmail.com>
wrote:

>In another newsgroup mention is made of a handy ladderline support.
>Would like to know where these items were originally made for?
>Farm electric fencing?
>http://www.dxengineering.com/images/examples/LL_Insulator_Install.jpg
>Thanks,,,Eskay.

Dunno about the other group's idea...

...but cut a short section of plastic or rubber hose. Slit one side of
it. Screw it to a support. Insert ladderline into the slit.

bob
k5qwg

1824. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 19:33:09 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-F7442F.13330127022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64035

In article <1206j98slafj4a@corp.supernews.com>,
Roy Lewallen <w7el@eznec.com> wrote:

> chuck wrote:
> > Of course not, Roy. I sure hope what I wrote did not suggest
> > otherwise. But I am trying to learn exactly which properties of an
> > antenna system cause house wiring to be "loaded up."
> >
> > In particular, I am trying to establish whether a top-loaded vertical
> > with the same wire geometry and RF ground as the open-wire
> > transmission line-fed dipole would be just as likely to cause
> > undesirable coupling to the house wiring. It seems to me that it is.
> > If it is not, I'm trying to understand why not.
>
> When you have common mode current, it not only flows on the feedline,
> but continues to ground via whatever path it can. And this is usually
> the house wiring. So your antenna now consists of the "antenna", the
> feedline, and the house wiring. The problem here is current in house
> wiring due to conduction, not coupling.
>
> If you properly feed a vertical, no RF current is conducted to the house
> wiring. Either a properly fed vertical or a radiating feedline can
> induce current in the house wiring by coupling, but the amount will
> depend on (among other things) proximity of the antenna or feedline to
> the house. Most of us can put a vertical at least a little distance from
> the house, but the feedline has to come right in.
>
> > In other words, is the problem transmission line unbalance, or simply
> > having a radiator with undesirable proximity to house wiring?
>
> Again, the problems are twofold. One is conducted current, and the other
> is coupled current due to proximity.
>
> > One more way to word the question: if you tie the open-wire lines
> > together at the tuner/transmitter and feed the antenna as a vertical,
> > all of the current in the line will be common-mode. Would that be
> > less likely to cause undesirable coupling than the exact same antenna
> > with transmission line unbalance.
>
> You would have exactly the same problems in either case, assuming a
> worst case of imbalance when feeding the antenna normally (which isn't
> likely). Whatever current leaves the rig via the connected-together
> feedline conductors (or via common mode current in a normally fed
> antenna), an equal amount of current has to leave the rig via its

> chassis or "ground" connection. In a properly fed vertical, this current
> ends up in the ground system at the base of the antenna. In the
> tied-together feed, it'll end up getting to ground however it can,
> radiating and inducing other currents along the way.
>
> > . . .
>
> Roy Lewallen, W7EL

Here is something strange I discovered this weekend. While using a F.S. meter as a RF sniffer, I was probing along some lamp cords that are plugged into one of those extention outlet strips. I have a split block ferrite core which measures one inch square and a 1/2 inch ID hole. So while monitoring the FS meter I placed the core on the 115 to the house outlet thinking that I will see a decrease in FS reading, much to my surprise just the opposite happened, the FS meter pegged out. Why would adding the core cause the FS reading to increase?

1825. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 19:36:55 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <1206l6vgcp658bd@corp.supernews.com>
Source record: 64036

dansawyeror wrote:
> All,
>
> This is an attempt to add loaded radials to a loaded vertical. The plan
> is to make a large efficient loading coil for the radials and offset the
> variable coil in a 'screwdriver' vertical segment.
>
> The antenna is about 4 meters overall with about an load at about 1.5
> meters from the base. The antenna is raised about a meter.
>
> The loaded radials are two 1 inch copper tubes about 1.67 meters long.
> The radial loading coil is connected from the coax shield to the radial
> coil.
>
> The feed is 50 Ohm coax, the shield is connected to the loading coil and
> the center to the base.
>
> 4nec2 predicts an impedance of between 10 and 20 ohms depending of the
> assumed values of R in the impedance loads. The actual antenna measures
> 36 Ohms at the feed.
>
> The question is: What is the basis of the difference between predicted
> and measured values?
>
> Below is a representation of the nec code used to simulate the antenna.
>
> Thanks - Dan
>
> CM 75 m Vertical 12 ft high
> CM base 3 ft up - two radials
> CM copper conductivity
> CE
> GW 1 11 0 0 1 0 0 5
> 0.025
> GW 2 7 0 0 1 0 1.67 1
> 0.025
> GW 3 7 0 0 1 0 -1.67 1
> 0.025
> GE 0
> LD 4 1 1 1 5 1500
> LD 4 1 6 6 8 600
> EX 0 1 2 0 1 0
> GN 2 0 0 0 13 5.e-3
> FR 0 1 0 0 3.74 0

> EN
>
>
Dan;

I can't answer you question except to note that this is why they call antenna design an ART not a SCIENCE. Other comm enters have good suggestions. Let us know what happens.

Dave WD9BDZ

1826. Re: Ladder line supports.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 20:25:22 UTC
From: dplatt@radagast.org
Message-ID: <1206o1iiurrsv40@corp.supernews.com>
Source record: 64037

In article <7ekv2ysr2oel.1tn134dbykemn.dlg@40tude.net>,
Eskay <siebklaasNO@SPAMhotmail.com> wrote:

>In another newsgroup mention is made of a handy ladderline support.
>Would like to know where these items were originally made for?
>Farm electric fencing?
>http://www.dxengineering.com/images/examples/LL_Insulator_Install.jpg

That could well be, although I can't match this photo to a specific electric-fence insulator brand. It resembles some of the "pinlock" insulators which can be used to hold wire, polywire, and polyrope (the latter two being wire- or rope-thick strands of a woven plastic, with very-fine-gauge copper wire woven in among it to provide the current carrying capability).

http://electric-deer-fence.com/electricdeerfences/electricfenceinsulators/woodposts.htm shows one such, about halfway down the page.

Another possibility for retaining ladder line would be the insulators made for "polytape" (sort of like polyrope, but formed into a flat woven tape anywhere from .5" to 2" wide). Polytape clips seem to be designed to "clamp down" on the tape, to keep it from sliding back and forth and cutting the insulator (or the tape itself), and this clamping arrangement might or might not be compatible with any given variety of ladder line... the line's conductors might turn out to be too thick for some types of insulator clip.

The electric-fence insulators seem to be be modestly priced - anywhere form $6 to $8 per bag of 25 - and so experimentation might be worthwhile.

Another variant I see at several vendors' sites is the "Isoline New Generation Line Insulator" (seems to have a manufacturer part number of 653.002). It's a single-piece nail-on insulator for wire or polyrope. Looks as if it'd take a ladder line turned sideways and hold it quite securely.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1827. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 20:37:50 UTC
From: nm5k@wt.net
Message-ID: <1141072670.690467.150510@i39g2000cwa.googlegroups.com>
Source record: 64038

>Does 4nec2 include the ground losses in the feedpoint impedance?

Ground loss is what I thought of at first... Or like Roy says, maybe
coupling to lossy objects. Just as a given. With two short loaded
radials,
on a short loaded ground plane at 3 ft at the base, you will see a
good bit of ground loss unless you are over some really good ground,
like the beach. Heck...Make that a *lot* of ground loss with the base
at 3 ft. Even two *full length* radials would make for a poor ground,
and
excess ground loss at 3 ft. Even 16 radials would barely be mediocre..
MK

1828. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 20:39:37 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1206oscg5noap5f@corp.supernews.com>
Source record: 64039

Big Endian wrote:
>
> Here is something strange I discovered this weekend. While using a F.S.
> meter as a RF sniffer, I was probing along some lamp cords that are
> plugged into one of those extention outlet strips. I have a split block
> ferrite core which measures one inch square and a 1/2 inch ID hole. So
> while monitoring the FS meter I placed the core on the 115 to the house
> outlet thinking that I will see a decrease in FS reading, much to my
> surprise just the opposite happened, the FS meter pegged out. Why would
> adding the core cause the FS reading to increase?

There are at least three possible explanations.

The first is one I've come across many times in doing EMI work, and is probably the most likely. What happens is that you've got two or more radiating sources whose fields cancel or partially cancel at the field strength meter. When you reduce the radiation from one of those sources, the field at the meter increases.

The second can be a bit subtle. Suppose you have a wire near an antenna and that wire is, say, 3/4 wavelength long. Very little current will be induced in this wire because it's far from self-resonance. Now put a choke in the wire 1/4 wavelength from one end. Presto, a lot of induced current in the now-isolated 1/2 wavelength portion. This phenomenon can cause common mode current to increase when you add a common mode choke on the feedline, if the current is being induced in the feedline (as opposed to conducted) and the wire length and choke position are favorable for this to happen.

The third is that the core you're using is a high frequency ferrite. If it is, it will act as a loading coil, which could make a previously non-resonant system resonant. I don't think this is likely, though, because most clamp-on cores are made from ferrites suitable for EMI suppression. A common type of material for this purpose is type 43 ferrite, which has a Q of 1 at a few MHz. So this type of ferrite won't cause resonant effects like a high frequency ferrite (e.g., type 61) would.

Roy Lewallen, W7EL

1829. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-27 23:47:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <UbMMf.17003$2O6.8826@newssvr12.news.prodigy.com>
Source record: 64040

dansawyeror wrote:
> I have measured the antenna with two different instruments. One is an
> Autek analyzer at the antenna, the second is with an 8405a at the end of
> 100+ feed of cable. They both show the same results.

Are you aware that a coax cable will change the impedance
from the antenna feedpoint impedance in a spiral to 50
ohms in the limit?
--
73, Cecil http://www.qsl.net/w5dxp

1830. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 03:11:11 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <4403BF4F.80702@comcast.net>
Source record: 64041

Roy,

Several weeks back, and confirmed by frequency sweep model runs, you indicated that minimum impedance is close or equal to the resonance point. I tuned the antenna to the frequency of interest and then used the Autek to verify the resonance point. That minimum value was 36 Ohms. I am assuming this is or is very close to the resonance point for the antenna system.

What does your running of the model show for resonance frequency? At resonance my running of the model shows close to 20 Ohms for the relatively large values of R used in the model.

Thanks - Dan

Roy Lewallen wrote:
> Frank's wrote:
>
>>
>> Dan, I notice the Autek analyzer only measures the magnitude of the
>> impedance. With any of these lower cost instruments it is impossible
>> to find any accuracy specifications. The 8405A is an excellent
>> instrument, but assume you calibrated it -- short/open/load -- at the
>> end of the 100 ft cable. This calibration should also be carried out
>> on the antenna side of your isolation transformer when you install
>> it. Curious as to what kind of directional coupler you are using for
>> HF. I remember using a small HP coupler for HF, but cannot remember
>> its model number.
>>
>> Frank
>
>
> Hm, if the Autek measures only the magnitude of the impedance, how does
> Dan know the resistance? The model shows about 133 ohms of reactance,
> which is much greater than the resistance.
>
> Roy Lewallen, W7EL

1831. 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 03:39:36 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <FvSdna50paFrWJ7ZnZ2dnUVZ_s-dnZ2d@comcast.com>
Source record: 64042

I have been mobilling for years but never on 80/75m. Getting ready to
build something to mount on my Toyota 4Runner. Given the following
choices I would appreciate some advice. Assume that both my roof mount
and rear trailer mount are "perfect" and will not be the determining factor.

Choice #1:
Mount a 1" or so mast starting at the trailer hitch going vertical for
4.5' and then have the loading coil (which clears the roof line) and
finally a 6.5' whip. Base height is about 2' off the ground and the top
is 13+' off the ground.

Choice #2:
Mount a 1" mast 4' high from the top of the roof, then the loading coil,
and then a 5' whip which is vertical for 2' and then horizontal for 3'.
Base height about 6' and top height about 12.5'.

Choice #2 will have a lower ground loss (good) than choice #1 but choice
#1 being taller will have a higher radiation resistance (good) than
choice #1. For an 80m antenna which of the tradeoffs generally is more
important for an antenna this size?

Thanks,
Larry Benko, W0QE

1832. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 03:42:25 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <FvSdnal0paEDW57ZnZ2dnUVZ_s-dnZ2d@comcast.com>
Source record: 64043

Larry Benko wrote:

Slight ERROR!

Should be:
Choice #2 will have a lower ground loss (good) than choice #1 but choice
#1 being taller will have a higher radiation resistance (good) than
choice #2.

>
> Choice #2 will have a lower ground loss (good) than choice #1 but choice
> #1 being taller will have a higher radiation resistance (good) than
> choice #1. For an 80m antenna which of the tradeoffs generally is more
> important for an antenna this size?
>
> Thanks,
> Larry Benko, W0QE

1833. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 03:53:35 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <4403C93F.2040700@comcast.net>
Source record: 64044

Frank,

The Autek is remarkably close. I have used it to checkout 50 and 25 Ohm loads.
For these two values it is very close. (It is battery level sensitive.)

The couplers are a pair of M-C ZFDC 20-4's.

Dan

Frank's wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:44031031.9050905@comcast.net...
>
>>Roy,
>>
>>No I have not decoupled the feed from the antenna. I will try that
>>tonight. I have wound a 2:1 balun for testing. (anticipating at least a 25
>>ohm input impedance)
>>
>>I have measured the antenna with two different instruments. One is an
>>Autek analyzer at the antenna, the second is with an 8405a at the end of
>>100+ feed of cable. They both show the same results.
>>
>>Thanks - Dan
>
>
> Dan, I notice the Autek analyzer only measures the magnitude of the
> impedance. With any of these lower cost instruments it is impossible to
> find any accuracy specifications. The 8405A is an excellent instrument, but
> assume you calibrated it -- short/open/load -- at the end of the 100 ft
> cable. This calibration should also be carried out on the antenna side of
> your isolation transformer when you install it. Curious as to what kind of
> directional coupler you are using for HF. I remember using a small HP
> coupler for HF, but cannot remember its model number.
>
> Frank
>
>

1834. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 04:34:54 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <OpQMf.7547$Cp4.3069@edtnps90>
Source record: 64045

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:4403C93F.2040700@comcast.net...
> Frank,
>
> The Autek is remarkably close. I have used it to checkout 50 and 25 Ohm
> loads. For these two values it is very close. (It is battery level
> sensitive.)
>
> The couplers are a pair of M-C ZFDC 20-4's.
>
> Dan

Thanks Dan, I had forgotten about Mini-Circuits. Their price is hard to beat. I may pick up one of the "PDC" series dual directional couplers. Incidentally your code indicates resonance occurs at 3.54 MHz. I wonder how the Autek behaves when subjected to a reactive load does it actually get close to the magnitude?

Frank

1835. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 05:44:55 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1207oqqsdjk4eab@corp.supernews.com>
Source record: 64046

dansawyeror wrote:
> Roy,
>
> Several weeks back, and confirmed by frequency sweep model runs, you
> indicated that minimum impedance is close or equal to the resonance
> point. I tuned the antenna to the frequency of interest and then used
> the Autek to verify the resonance point. That minimum value was 36 Ohms.
> I am assuming this is or is very close to the resonance point for the
> antenna system.

Yes, that should be correct.

> What does your running of the model show for resonance frequency? At
> resonance my running of the model shows close to 20 Ohms for the
> relatively large values of R used in the model.

NEC-2 shows resonance (and minimum SWR) at 3.55 MHz, where R = 16.12 ohms; NEC-4 says resonance is at 3.51 MHz., where R is 16.08 ohms. (I'm using EZNEC implementations of both.) Although small, I don't usually see that much difference between NEC-2 and NEC-4. I suspect it's because of the very low height above ground -- the two programs implement the Sommerfeld ground somewhat differently. An average gain test shows good average gain, indicating that NEC isn't having numerical difficulties.

I'm getting pretty convinced that the problem is the use of lumped loads for the inductors. With this short an antenna, I'd expect the inductor currents to be quite different at the ends(*), making the lumped load models inadequate. This can lead to pretty severe errors.

(*) due to inductor radiation and unsymmetrical coupling of the inductor to the rest of the antenna and to ground.

Roy Lewallen, W7EL

1836. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 06:13:49 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <4403EA1D.4090802@comcast.net>
Source record: 64047

Thanks - I will try to figure you how to create a non lumped model for the inductors. Right now that is 'undiscovered country'.

Dan

Roy Lewallen wrote:
> dansawyeror wrote:
>
>> Roy,
>>
>> Several weeks back, and confirmed by frequency sweep model runs, you
>> indicated that minimum impedance is close or equal to the resonance
>> point. I tuned the antenna to the frequency of interest and then used
>> the Autek to verify the resonance point. That minimum value was 36
>> Ohms. I am assuming this is or is very close to the resonance point
>> for the antenna system.
>
>
> Yes, that should be correct.
>
>> What does your running of the model show for resonance frequency? At
>> resonance my running of the model shows close to 20 Ohms for the
>> relatively large values of R used in the model.
>
>
> NEC-2 shows resonance (and minimum SWR) at 3.55 MHz, where R = 16.12
> ohms; NEC-4 says resonance is at 3.51 MHz., where R is 16.08 ohms. (I'm
> using EZNEC implementations of both.) Although small, I don't usually
> see that much difference between NEC-2 and NEC-4. I suspect it's because
> of the very low height above ground -- the two programs implement the
> Sommerfeld ground somewhat differently. An average gain test shows good
> average gain, indicating that NEC isn't having numerical difficulties.
>
> I'm getting pretty convinced that the problem is the use of lumped loads
> for the inductors. With this short an antenna, I'd expect the inductor
> currents to be quite different at the ends(*), making the lumped load
> models inadequate. This can lead to pretty severe errors.
>
> (*) due to inductor radiation and unsymmetrical coupling of the inductor
> to the rest of the antenna and to ground.
>
> Roy Lewallen, W7EL

1837. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 06:19:50 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <4403EB86.3020005@comcast.net>
Source record: 64048

Good question. I will play with that. That said, based on Roy's comment at minimum the load should appear nearly pure resistive.

I just tested the Autek with 6.25, 12.5, and 25 Ohm loads.
25 read 26
12.5 read 12 - 13 - 12 etc.
6.25 read mostly 7 with an occasional 6.

I would say for non-reactive loads it is pretty close.

Tomorrow - will be to experiment with non lumped inductors. That will be a challenge.

Thanks - Dan

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:4403C93F.2040700@comcast.net...
>
>>Frank,
>>
>>The Autek is remarkably close. I have used it to checkout 50 and 25 Ohm
>>loads. For these two values it is very close. (It is battery level
>>sensitive.)
>>
>>The couplers are a pair of M-C ZFDC 20-4's.
>>
>>Dan
>
>
> Thanks Dan, I had forgotten about Mini-Circuits. Their price is hard to
> beat. I may pick up one of the "PDC" series dual directional couplers.
> Incidentally your code indicates resonance occurs at 3.54 MHz. I wonder how
> the Autek behaves when subjected to a reactive load does it actually get
> close to the magnitude?
>
> Frank
>
>

1838. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 08:31:33 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12082j8tknvfi05@corp.supernews.com>
Source record: 64049

dansawyeror wrote:
> Thanks - I will try to figure you how to create a non lumped model for
> the inductors. Right now that is 'undiscovered country'.

EZNEC v. 4.0 users should use Wires Window/Create/Create Helix. You'll get many choices, including position, orientation, various ways of specifying the pitch and number of turns, twist direction, and so forth. (EZNEC demo users can create any size helix to see how it works, but won't be able to run a calculation unless the helix is extremely simple.) In NEC, use a GH 'card'.

There should be at least a wire diameter of air space between turns, preferably several. (That is, the center-center distance between the wires in one turn and the wires in adjacent turns should be at least two wire diameters, preferably more.) If air spacing is less than 2 or 3 wire diameters, the calculated loss will be somewhat lower than reality because NEC (or EZNEC) doesn't account for proximity effect.

Roy Lewallen, W7EL

1839. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 11:05:09 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-54EFC4.05050128022006@news-rdr-01.rdc-kc.rr.com>
Source record: 64050

In article <1206oscg5noap5f@corp.supernews.com>,
Roy Lewallen <w7el@eznec.com> wrote:

> Big Endian wrote:
> >
> > Here is something strange I discovered this weekend. While using a F.S.
> > meter as a RF sniffer, I was probing along some lamp cords that are
> > plugged into one of those extention outlet strips. I have a split block
> > ferrite core which measures one inch square and a 1/2 inch ID hole. So
> > while monitoring the FS meter I placed the core on the 115 to the house
> > outlet thinking that I will see a decrease in FS reading, much to my
> > surprise just the opposite happened, the FS meter pegged out. Why would
> > adding the core cause the FS reading to increase?
>
> There are at least three possible explanations.
>
> The first is one I've come across many times in doing EMI work, and is
> probably the most likely. What happens is that you've got two or more
> radiating sources whose fields cancel or partially cancel at the field
> strength meter. When you reduce the radiation from one of those sources,
> the field at the meter increases.
>
> The second can be a bit subtle. Suppose you have a wire near an antenna
> and that wire is, say, 3/4 wavelength long. Very little current will be
> induced in this wire because it's far from self-resonance. Now put a
> choke in the wire 1/4 wavelength from one end. Presto, a lot of induced
> current in the now-isolated 1/2 wavelength portion. This phenomenon can
> cause common mode current to increase when you add a common mode choke
> on the feedline, if the current is being induced in the feedline (as
> opposed to conducted) and the wire length and choke position are
> favorable for this to happen.
>
> The third is that the core you're using is a high frequency ferrite. If
> it is, it will act as a loading coil, which could make a previously
> non-resonant system resonant. I don't think this is likely, though,
> because most clamp-on cores are made from ferrites suitable for EMI
> suppression. A common type of material for this purpose is type 43
> ferrite, which has a Q of 1 at a few MHz. So this type of ferrite won't
> cause resonant effects like a high frequency ferrite (e.g., type 61) would.
>
> Roy Lewallen, W7EL

I suppose the right thing to do is to place ferrite cores on all the
conductors in the area. Could get expensive. I have so many wires all
over the place the job seems a bit hopeless.

Thanks for the information Roy.

1840. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 12:00:37 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1208er7msvro839@corp.supernews.com>
Source record: 64051

Big Endian wrote:
>
> I suppose the right thing to do is to place ferrite cores on all the
> conductors in the area. Could get expensive. I have so many wires all
> over the place the job seems a bit hopeless.
>. . .

Well, that's one way to solve the problem. Like the sign over my desk says, "Anyone can design a bridge that will stand up. It takes an engineer to design a bridge that will barely stand up."

Roy Lewallen, W7EL

1841. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 13:49:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <WxYMf.17441$2O6.12406@newssvr12.news.prodigy.com>
Source record: 64052

Roy Lewallen wrote:
> I'm getting pretty convinced that the problem is the use of lumped loads
> for the inductors. With this short an antenna, I'd expect the inductor
> currents to be quite different at the ends(*), making the lumped load
> models inadequate. This can lead to pretty severe errors.
>
> (*) due to inductor radiation and unsymmetrical coupling of the inductor
> to the rest of the antenna and to ground.

Over on qrz.com, W8JI reported that he measured a 60 degree phase
shift through a 100 uH coil at 1 MHz. He also asserted that the
flux density is highest in the middle of a coil. Since the current
is proportional to flux density, that means the current in the
middle of the coil is higher than at the ends. These things are
perfectly consistent with what EZNEC reports when the distributed
network helical coil inductor is used instead of the lumped circuit
load inductor.

Essentially the only time the currents at each end of the coil are
equal is when it is installed near a standing-wave current maximum
point where the slope of the current is already close to
zero whether it be in a wire or in a coil. The phase of the standing-
wave current is relatively constant whether it be in a wire or
in a coil. (The standing-wave current doesn't rotate like a normal
phasor.) The phase shift caused by the coil happens in the forward
and reflected currents, not in the standing wave current which is the
sum of the forward current and reflected current. Not much
changes when part of a wavelength of wire is replaced by a large
loading coil. The current waveform, though warped somewhat by the
high fields inside the coil, still very roughly follows the classic
cosine shape of a wire. After all, no matter what, the current at
the tip of an antenna is zero whether it be a wire or a coil. If
a coil is placed at a standing-wave current node, the phase at each
end of the coil will be opposite, i.e. current is either flowing in
both ends at the same time or out both ends at the same time. Such
is the nature of distributed networks.
--
73, Cecil http://www.qsl.net/w5dxp

1842. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 13:51:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ZzYMf.17442$2O6.11585@newssvr12.news.prodigy.com>
Source record: 64053

Roy Lewallen wrote:
> EZNEC v. 4.0 users should use Wires Window/Create/Create Helix.

And the detailed results are quite different from the lumped
circuit load inductor.
--
73, Cecil http://www.qsl.net/w5dxp

1843. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 14:47:15 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <SbPDKQPzJGBEFARo@ifwtech.co.uk>
Source record: 64054

Big Endian wrote:
>In article <1206oscg5noap5f@corp.supernews.com>,
> Roy Lewallen <w7el@eznec.com> wrote:
>
>> Big Endian wrote:
>> >
>> > Here is something strange I discovered this weekend. While using a F.S.
>> > meter as a RF sniffer, I was probing along some lamp cords that are
>> > plugged into one of those extention outlet strips. I have a split block
>> > ferrite core which measures one inch square and a 1/2 inch ID hole. So
>> > while monitoring the FS meter I placed the core on the 115 to the house
>> > outlet thinking that I will see a decrease in FS reading, much to my
>> > surprise just the opposite happened, the FS meter pegged out. Why would
>> > adding the core cause the FS reading to increase?
>>
>> There are at least three possible explanations.
>>
>> The first is one I've come across many times in doing EMI work, and is
>> probably the most likely. What happens is that you've got two or more
>> radiating sources whose fields cancel or partially cancel at the field
>> strength meter. When you reduce the radiation from one of those sources,
>> the field at the meter increases.
>>
>> The second can be a bit subtle. Suppose you have a wire near an antenna
>> and that wire is, say, 3/4 wavelength long. Very little current will be
>> induced in this wire because it's far from self-resonance. Now put a
>> choke in the wire 1/4 wavelength from one end. Presto, a lot of induced
>> current in the now-isolated 1/2 wavelength portion. This phenomenon can
>> cause common mode current to increase when you add a common mode choke
>> on the feedline, if the current is being induced in the feedline (as
>> opposed to conducted) and the wire length and choke position are
>> favorable for this to happen.
>>
>> The third is that the core you're using is a high frequency ferrite. If
>> it is, it will act as a loading coil, which could make a previously
>> non-resonant system resonant. I don't think this is likely, though,
>> because most clamp-on cores are made from ferrites suitable for EMI
>> suppression. A common type of material for this purpose is type 43
>> ferrite, which has a Q of 1 at a few MHz. So this type of ferrite won't
>> cause resonant effects like a high frequency ferrite (e.g., type 61) would.
>>
>> Roy Lewallen, W7EL
>
>I suppose the right thing to do is to place ferrite cores on all the

>conductors in the area. Could get expensive. I have so many wires all
>over the place the job seems a bit hopeless.
>
>Thanks for the information Roy.

Another option is to place a choke in the mains supply for the entire station. If the RF current path is down the feedline (in common mode) and then out into the mains, you can reduce it by inserting a choke at any point along its path, and the mains supply may be more convenient place.

The mains supply would need a different kind of RF choke, of course. One option is to wind the entire mains cable - one or both live conductors, neutral and safety ground - on a stack of large toroids (bearing in mind what Roy said above, about choosing the right material). Another option is to buy a ready-made mains filter that also has an RF choke in the ground lead.

The difficulty is to organize the mains wiring so that *everything* passes through the choke. If you leave even one sneak path to ground, the RF will happily use it! Also any other lines such as phone and network connections need RF chokes of their own. If this starts to read like the things you have to do for lightning protection... why, that's perfectly true because very similar considerations apply.

Groveling on your knees under the table is a chore, and of course it's totally beneath the dignity of a Licensed Radio Armature. Well, do it anyway. At my old QTH I found it well worth the effort. Re-grouping all the mains feeds through a single filter cleaned up my mains-borne TVI, and it also reduced the computer and other noise that was coming *up* the mains.

Another very useful tool is a clip-on RF current meter. This will tell you much more than a FS meter, because at last you can *see* where the RF current is. For details, see my "Best of 'In Practice'" pages or the MFJ catalog.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1844. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 15:11:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KKZMf.55186$dW3.46954@newssvr21.news.prodigy.com>
Source record: 64055

Ian White GM3SEK wrote:
> Another very useful tool is a clip-on RF current meter. This will tell
> you much more than a FS meter, because at last you can *see* where the
> RF current is. For details, see my "Best of 'In Practice'" pages or the
> MFJ catalog.

I just ordered an MFJ-853 and it's on 2-4 weeks backorder.
--
73, Cecil http://www.qsl.net/w5dxp

1845. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 15:58:29 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <4ms802ppu9r432gkopvfdlkltdkfigtaiu@4ax.com>
Source record: 64056

On Tue, 28 Feb 2006 04:00:37 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Big Endian wrote:
>>
>> I suppose the right thing to do is to place ferrite cores on all the
>> conductors in the area. Could get expensive. I have so many wires all
>> over the place the job seems a bit hopeless.
> >. . .
>
>Well, that's one way to solve the problem. Like the sign over my desk
>says, "Anyone can design a bridge that will stand up. It takes an
>engineer to design a bridge that will barely stand up."

Or not [g]

http://www.ketchum.org/bridgecollapse.html

1846. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 16:30:48 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <esNwnsV4qHBEFAju@ifwtech.co.uk>
Source record: 64057

Cecil Moore wrote:
>Ian White GM3SEK wrote:
>> Another very useful tool is a clip-on RF current meter. This will
>>tell you much more than a FS meter, because at last you can *see*
>>where the RF current is. For details, see my "Best of 'In Practice'"
>>pages or the MFJ catalog.
>
>I just ordered an MFJ-853 and it's on 2-4 weeks backorder.

Same story over here - I'm waiting for samples to review for the
magazine.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1847. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 20:06:33 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1209back4d2on5a@corp.supernews.com>
Source record: 64058

Wes Stewart wrote:
> On Tue, 28 Feb 2006 04:00:37 -0800, Roy Lewallen <w7el@eznec.com>
> wrote:
>
>> Big Endian wrote:
>>> I suppose the right thing to do is to place ferrite cores on all the
>>> conductors in the area. Could get expensive. I have so many wires all
>>> over the place the job seems a bit hopeless.
>>> . . .
>> Well, that's one way to solve the problem. Like the sign over my desk
>> says, "Anyone can design a bridge that will stand up. It takes an
>> engineer to design a bridge that will barely stand up."
>
> Or not [g]
>
> http://www.ketchum.org/bridgecollapse.html

Ah, yes, the Tacoma Narrows bridge. That movie played continuously in the lobby of the Engineering Building at the U. of Colorado most of the time I was going there. For anyone interested in this topic, I recommend _To Engineer is Human: The Role of Failure in Successful Design_ by Henry Petroski.

The whole trick, of course, is to stay on the right side of "barely".

Roy Lewallen, W7EL

1848. About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 20:25:32 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <t6oed3-akb.ln1@p400bob.personal.cox.net>
Source record: 64059

Yes I should know this.. However an issue has come up in my place of work I am trying to get my head around. On a 10GHz microwave TX there is a stripline parallel to the output track that is suppose to detect forward power. Nothing strange about that. What is weird is that it appears to be roughly a half wave length (or more).

The question is this. If one hangs a 1/2 wave dipole in free space I assume it receives such that current maximums are at the centre and voltage maxiums at the ends. Is this the case whether a feedline is connected or not?

If I then take a stripline cct terminated at one end with a 50r resistor and a detect diode at the other and is a half wave long, what is the current/voltage distribution in this configuration.

What I wonder is if it is a halfwave there may be no voltage at the detect diode input. (It could be 3/4 wavelength when one factors in pcb dielectric and end loading)

Thoughts?

Cheers Bob VK2YQA

1849. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:10:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <C%2Nf.61706$PL5.25203@newssvr11.news.prodigy.com>
Source record: 64060

Roy Lewallen wrote:
> The whole trick, of course, is to stay on the right side of "barely".

Why not the left side? :-)
--
73, Cecil http://www.qsl.net/w5dxp

1850. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:34:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ll3Nf.61718$PL5.41863@newssvr11.news.prodigy.com>
Source record: 64061

Bob Bob wrote:
> If I then take a stripline cct terminated at one end with a 50r resistor
> and a detect diode at the other and is a half wave long, what is the
> current/voltage distribution in this configuration.

Since the ends of the 1/2WL conductor are open circuits, standing
waves on the conductor are the result. The standing wave(s) consists
of the superposition of the forward wave(s) and the reflected wave(s).
This is exactly why the forward and reflected waves cannot be ignored
(as some gurus advise) if understanding is the goal.

For a 1/2WL conductor, the standing wave has a cosine envelope with
a phase near zero all along the line because the forward and reflected
phasors are rotating in opposite directions. The current is obviously
zero at the ends and maximum in the center.

The resistor termination at one end dissipates either the forward
wave or reflected wave depending upon which end it is located. The
dipole at the other end rectifies the other wave. If you are measuring
the forward power, the forward wave is rectified by the diode and the
reflected wave is dissipated/attenuated by the resistor. I have an
old Heathkit SWR meter that operates the same way. There's two pickup
conductors, one for forward power and one for reflected power.

In short, the resistor dissipates one of the component traveling waves
thus preventing reflections while the diode rectifies the other traveling
wave, thus providing a voltage proportional to that other traveling wave.
Which wave is dissipated and which wave is rectified depends upon which
end of the conductor the resistor and diode are located.
--
73, Cecil http://www.qsl.net/w5dxp

1851. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:35:02 UTC
From: F5AD <f5adnospam@xxxhotmail.com>
Message-ID: <4404c2d0$0$8250$636a55ce@news.free.fr>
Source record: 64063

With 50 Ohms at the end, I suppose the line is producing progressive waves
and not standing waves, and no matter its length

73

Andr&#65533; F5AD
http://f5ad.free.fr

1852. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:36:00 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141162560.167190.40830@i40g2000cwc.googlegroups.com>
Source record: 64062

Clearly in a center-fed half-wave dipole, if there is no load at the center, the current there is quite low, and depends on the capacitance from wire end to wire end. If you short across the feedpoint, it will be resonant and the center will be a current node.

In the case of coupled microstrip hybrids, maximum coupling occurs at odd multiples of 1/4 wavelength, and falls to zero at even multiples of 1/4 wavelength -- that is, at multiples of 1/2 wavelength. If you DON'T properly terminate one end of the coupled line, you'll loose directivity because of reflections at that end.

I suspect that if you include the propagation velocity of the microstrip, you'll find that it's not a half-wave long.

Cheers,
Tom

1853. Question regarding MFJ-1714 antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:44:39 UTC
From: junjunius@yahoo.com
Message-ID: <1141163079.201800.133290@v46g2000cwv.googlegroups.com>
Source record: 64064
Cross-posted to: rec.radio.amateur.antenna,rec.radio.scanner,alt.radio.scanner

Hello folks,

I hope that someone might be able to answer a question for me: does the MFJ-1714 have any coil in it which would serve to attenuate frequencies below the 2m amateur band for which it's apparently designed?

http://www.mfjenterprises.com/products.php?prodid=MFJ-1714

Or would this antenna serve well for frequencies below 440 MHz on a handheld scanner?

This antenna at scannerworld.com *looks* to be the same as the MFJ-1714, and it's marketed more broadly as a "3db GAIN VERTICAL TELESCOPIC BNC ANTENNA FOR SCANNERS". Any idea if this is the same antenna as the 1714? It does cost some ten bucks more than the MFJ ($26.99, as compared with $16.95 for the MFJ).

Thanks in advance for any assistance on this matter.

Junius

1854. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:45:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Wv3Nf.61723$PL5.35987@newssvr11.news.prodigy.com>
Source record: 64065

K7ITM wrote:
> Clearly in a center-fed half-wave dipole, if there is no load at the
> center, the current there is quite low, and depends on the capacitance
> from wire end to wire end. If you short across the feedpoint, it will
> be resonant and the center will be a current node.

Maybe you would like to rethink that, Tom. Consider a parasitic 1/2WL
element on a Yagi. The currents at the ends are obviously zero. The
current 1/4WL away from the zero points are the maximum current
points. If you short across the feedpoint of a 1/2WL dipole, it will
be resonant but the center will be a current loop (antinode), i.e.
a maximum current point. The center of a *one wavelength* dipole will
be a current node.
--
73, Cecil http://www.qsl.net/w5dxp

1855. Re: Question regarding MFJ-1714 antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 21:49:58 UTC
From: junjunius@yahoo.com
Message-ID: <1141163398.160276.270460@p10g2000cwp.googlegroups.com>
Source record: 64066
Cross-posted to: rec.radio.amateur.antenna,rec.radio.scanner,alt.radio.scanner

Oh, seems I forgot, here's the link for that scannerworld.com antenna
that looks to be a MFJ-1714 clone:

http://www.scannerworld.com/template.asp?viewproduct=ANT44

Junius

1856. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 22:07:12 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <9th9025nqnmh2h5akisv3v7ll0oo3gn69i@4ax.com>
Source record: 64067

On Tue, 28 Feb 2006 14:25:32 -0600, Bob Bob <bob3bob3@cox.net> wrote:
>The question is this. If one hangs a 1/2 wave dipole in free space I
>assume it receives such that current maximums are at the centre and
>voltage maxiums at the ends. Is this the case whether a feedline is
>connected or not?

Yes.

>If I then take a stripline cct terminated at one end with a 50r resistor
>and a detect diode at the other and is a half wave long, what is the
>current/voltage distribution in this configuration.

The point of your need at work is to insure that stripline presents a
50 Ohm characteristic as an untuned line, not a resonant line. Of
course, you can perform the same using a tuned line, but this seems
unlikely barring new details offered by you.

>What I wonder is if it is a halfwave there may be no voltage at the
>detect diode input. (It could be 3/4 wavelength when one factors in pcb
>dielectric and end loading)

And this would be reason why to NOT have it be a resonant line. I
presume there's a ground in the vicinity for both this sniffer section
and the main feed (which also needs to exhibit a characteristic Z).
Such devices are generally useful over an octave range.
>
>Thoughts?

This, of course, does require attention to factors such as pcb
dielectric as you have already taken care of end loading with the
resistor and the diode.

73's
Richard Clark, KB7QHC

1857. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [1/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 22:11:45 UTC
From: Ron H <rnharsh@attbi.com>
Message-ID: <DU3Nf.12118$wZ4.10820@newsfe16.lga>
Source record: 64068
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

I certainly hope everyone in this list is smart enough to NEVER open a file
with the .scr extension!

Carry On!
K3PID
Ron H.

1858. Help colinear building problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-02-28 23:29:24 UTC
From: tucker@conninc.com
Message-ID: <1141169364.174650.133280@i39g2000cwa.googlegroups.com>
Source record: 64069

Im trying to build a 6dB simple colinear for my 2.4g wireless setup.
Im using a simple setup
from:

//martybugs.net/wireless/collinear.cgi

It uses a short piece of 12ga copper house wire with just two one turn
loops at 1/2 wave & 3/4 wave. I have access to a network analyzer @
work so i tried measuring the antenna'but come up with 1.4 g & 3.4 g.
No matter what i do i cant get the antenna near the 2.4 band.
Over the years Ive build many amateur band antennas of all types but
this ones got the best
of me.

1859. Re: Help colinear building problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 00:25:29 UTC
From: jgboyles@aol.com
Message-ID: <1141172729.828539.245050@p10g2000cwp.googlegroups.com>
Source record: 64070

tucker@conninc.com wrote:
> Im trying to build a 6dB simple colinear for my 2.4g wireless setup.
> Im using a simple setup
> from:
>
> //martybugs.net/wireless/collinear.cgi
>
> It uses a short piece of 12ga copper house wire with just two one turn
> loops at 1/2 wave & 3/4 wave. I have access to a network analyzer @
> work so i tried measuring the antenna'but come up with 1.4 g & 3.4 g.
> No matter what i do i cant get the antenna near the 2.4 band.
> Over the years Ive build many amateur band antennas of all types but
> this ones got the best
> of me.

Looking at the article, it appears the author did not hook up a
network analyzer to his prototype. How do you know that your network
analyzer connected to his antenna would not yield the same results.
Why not simply test the antenna in its intended application and see how
it does. Whether you are getting 6db gain over a 2.4ghz isotropic
radiator will be hard to test.
If you have built ham band antennas, you know success can be judged
in many different ways.
Gary N4AST

1860. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 00:40:49 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141173649.354566.131670@j33g2000cwa.googlegroups.com>
Source record: 64071

I earlier wrote, "If you short across the feedpoint, it will
be resonant and the center will be a current node."

Belay that. Change it to, "If you short across the feedpoint, it will
be resonant and the center will be a current maximum."

1861. Re: Question regarding MFJ-1714 antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 01:38:48 UTC
From: Al Klein <rukbat@pern.invalid>
Message-ID: <emu902p2ak8m2hnn1img4fo5d97bc8rc70@4ax.com>
Source record: 64072
Cross-posted to: rec.radio.amateur.antenna,rec.radio.scanner,alt.radio.scanner

On 28 Feb 2006 13:44:39 -0800, junjunius@yahoo.com wrote:

>I hope that someone might be able to answer a question for me: does
>the MFJ-1714 have any coil in it which would serve to attenuate
>frequencies below the 2m amateur band for which it's apparently
>designed?

The 2 meter band is 144-148, not 440. The coil is a loading coil - it manes the antenna electrically longer, it doesn't cut off any frequencies.

>Or would this antenna serve well for frequencies below 440 MHz on a
>handheld scanner?

It's a bit long (cumbersome), but it should work.

1862. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 02:35:01 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <lrdfd3-g6c.ln1@p400bob.personal.cox.net>
Source record: 64073

Richard, Cecil and Tom

I should explain the "problem" somewhat.

The transmitter designs I believe are not very good. Perhaps they were designed to work on a different or narrower frequency and were hastily adapted by beancounters instead of designers. <grin> What is happening is that at a certain critical band of freqs (around 11.2GHz) the output from the detect diode is very close to zero and hence the power control (via ALC) and calibration table dont work too well. Thinking it was a design issue I actually moved the ref diode to the limit of its pads and the problem resolved itself. The effect was of course to make the sensor length electrically shorter by doing this. I was trying to establish whether I had a 1/2 or 3/4 wavelength sensor section to maybe take it up with engineering. (No doubt for another frequency I would move it in the opposite direction)

I suspect there is also another issue whereby the resonant sensor section is actually absorbing more power than it should and dissipating it in the resistor. The effect of this being a loss of available output power at the SMA connector.

Keep in mind that I am a production line tech rather than a designer. I am not suppose to modify things, only test and align! (Am actually an IT professional but had trouble finding that line of work!)

Many thanks for your input. As usual with you gents I am going to have to work through it all slowly!

To answer you specifically Richard, the PCB is a multilayer fibreglass thing with a largish ground being under both the output and sensor striplines. I was surprised that the sensor line was so long and so close when I first saw it thinking some major overcoupling might be occurring. The tracks are maybe 3mm wide and about 1.5mm (edges) apart. I am thinking also that the 50 ohm output is not being preserved as it goes past the sensor stripline. I think the freq coverage for this model is about 10.5 to 11.5GHz. Keep in mind that this really is the frist time I have seen microwave TX's up close so my gut feelings about track sizes/spacing may be way off.

Cheers Bob VK2YQA

1863. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 04:03:42 UTC
From: richardharrison@webtv.net
Message-ID: <7955-44051D1E-1114@storefull-3256.bay.webtv.net>
Source record: 64074

Bob, VK2YQA wrote:
"The question is this. If one hangs a 1/2-wave dipole in free space I assume it receives such that current maximums are at the centre and voltage maximums at the ends. Is this the case whether a feedline is connected or not?"

Yes, but you must have continuity between both halves of the dipole. If you disconnect the feedline leaving an open circuit gap in the dipole at its centre, you no longer have a 1/2-wave dipole of the same frequency. You have (2) lengths of wire and each has its first resonance at about twice the frequency of first resonance of your original dipole.

Best rergards, Richard Harrison, KB5WZI

1864. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 04:25:04 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <Am9Nf.8684$vC4.6237@clgrps12>
Source record: 64075

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:12082j8tknvfi05@corp.supernews.com...
> dansawyeror wrote:
>> Thanks - I will try to figure you how to create a non lumped model for
>> the inductors. Right now that is 'undiscovered country'.
>
> EZNEC v. 4.0 users should use Wires Window/Create/Create Helix. You'll get
> many choices, including position, orientation, various ways of specifying
> the pitch and number of turns, twist direction, and so forth. (EZNEC demo
> users can create any size helix to see how it works, but won't be able to
> run a calculation unless the helix is extremely simple.) In NEC, use a GH
> 'card'.
>
> There should be at least a wire diameter of air space between turns,
> preferably several. (That is, the center-center distance between the wires
> in one turn and the wires in adjacent turns should be at least two wire
> diameters, preferably more.) If air spacing is less than 2 or 3 wire
> diameters, the calculated loss will be somewhat lower than reality because
> NEC (or EZNEC) doesn't account for proximity effect.
>
> Roy Lewallen, W7EL

As I understand NEC; large errors can be introduced by junctions of dissimilar wire diameters, and in particular when the wires are at 90 deg. Therefore, when you have designed your "GH" inductors, the rest of the antenna should by constructed of the same diameter wire. This may be difficult since Dan is using two coils of significantly different Qs. I guess you could overcome this problem by varying the conductivity of the inductor to obtain the desired Q. Also, since segmentation tends to be relatively high in a helix, should segment length tapering be applied to those segments adjacent to the helix?

Frank, VE6CB

1865. Re: Help colinear building problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 04:44:25 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <JE9Nf.5538$FE2.3182@trnddc01>
Source record: 63926

<tucker@conninc.com> wrote in message
news:1141169364.174650.133280@i39g2000cwa.googlegroups.com...
> Im trying to build a 6dB simple colinear for my 2.4g wireless setup.
> Im using a simple setup
> from:
>
> //martybugs.net/wireless/collinear.cgi
>
> It uses a short piece of 12ga copper house wire with just two one turn
> loops at 1/2 wave & 3/4 wave. I have access to a network analyzer @
> work so i tried measuring the antenna'but come up with 1.4 g & 3.4 g.
> No matter what i do i cant get the antenna near the 2.4 band.
> Over the years Ive build many amateur band antennas of all types but
> this ones got the best
> of me.

Hi Marty

Would you be open to trying a different configuration?? This site shows
how to build colinear arrays from lengths of coax

http://wireless.gumph.org/articles/homemadeomni

Jerry

>

1866. Re: Help colinear building problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 05:23:47 UTC
From: tucker@conninc.com
Message-ID: <1141190627.793796.316490@u72g2000cwu.googlegroups.com>
Source record: 63927

Yes im going to try the coax type tomorrow, this one was much easier
and faster to make
so i built it first. There are alot of coax type out there and even
different opinions of how to
make the top & bottom 1/4 wave sections. It will be interesting to see
how it looks on the
Agilent 8720 analyzer.

1867. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 05:37:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120acppce6jle62@corp.supernews.com>
Source record: 63929

Frank wrote:
>
> As I understand NEC; large errors can be introduced by junctions of
> dissimilar wire diameters, and in particular when the wires are at 90 deg.
> Therefore, when you have designed your "GH" inductors, the rest of the
> antenna should by constructed of the same diameter wire. This may be
> difficult since Dan is using two coils of significantly different Qs. I
> guess you could overcome this problem by varying the conductivity of the
> inductor to obtain the desired Q. Also, since segmentation tends to be
> relatively high in a helix, should segment length tapering be applied to
> those segments adjacent to the helix?
>
> Frank, VE6CB

It's difficult to give an absolute answer to these questions, but some general comments and guidelines should help.

First, the error introduced by NEC-2 when wires of dissimilar diameter are connected is generally small, unless the wires are grossly different. This error can be minimized by making the segments as *long* as possible adjacent to the junction, which of course is contrary to the general principle that more segments are better. Even a small error can cause major changes in the pattern when the dissimilar diameter wires are in a parasitic element. EZNEC and a number of other programs have a built-in method of avoiding this problem for certain antenna types, but plain NEC-2 doesn't. NEC-4 is relatively free of this problem, but it's quite expensive for hobby use.

The Q of an inductor is determined by the inductance and the loss. The loss is a function of the dielectric, wire resistance, and radiation (which isn't really loss, but lowers Q as though it were). NEC type programs automatically account for the radiation, and it's easy to include wire loss. So assuming negligible dielectric loss, the programs should predict Q fairly accurately -- except for proximity affect. Proximity effect could be modeled in NEC by increasing the resistivity of the wires in the coil. EZNEC currently allows only a single wire resistivity for the whole model (although this will probably change in the next version). However, since the overall loss will be dominated by the inductors, the higher resistivity could be specified for the whole model without sacrificing significant accuracy. Alternatively, a number of resistive loads could be inserted in the inductors.

Segment length tapering usually isn't necessary with NEC based programs, unless there's a source near a place where the segment length changes. An average gain check should be run to determine if there's a problem.

If there is, segment length tapering is one tool which can be tried in improving the average gain.

Roy Lewallen, W7EL

1868. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 05:38:10 UTC
From: Mike Speed <mike8s2@yahoo.com>
Message-ID: <1141191490.907357.44040@v46g2000cwv.googlegroups.com>
Source record: 63928

> It is hard to visualize exactly how these crossovers happen on a
> microscopic scale, but the physics of the skin effect dictate that it
> *must* happen somehow.

Theory: "...the physics of skin effect dictate that [it] *must* happen
[*]somehow[*]...

Now, compute the consequences of the theory to see if it is right what
it would imply.

Compare those computation results to experiment. If they disagree, the
theory is wrong.

If you can't apply this procedure, your statement cannot be verified
scientifically.

1869. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 06:16:20 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <9vda02phh8315lpi2i6vn40iofv9l1om66@4ax.com>
Source record: 63930

On Tue, 28 Feb 2006 20:35:01 -0600, Bob Bob <bob3bob3@cox.net> wrote:
>I suspect there is also another issue whereby the resonant sensor
>section is actually absorbing more power than it should and dissipating
>it in the resistor.

Hi Bob,

That is why it is there, among other reasons.

>The effect of this being a loss of available output
>power at the SMA connector.

This is a symptom, and should not be a cause.

>To answer you specifically Richard, the PCB is a multilayer fibreglass
>thing with a largish ground being under both the output and sensor
>striplines.

That is as it should be.

> I was surprised that the sensor line was so long and so

On the order of 1.5 cM?

>close when I first saw it thinking some major overcoupling might be
>occurring. The tracks are maybe 3mm wide and about 1.5mm (edges) apart.

Sounds like a boilerplate design - which is to say right out of some
book or App. Note.

>I am thinking also that the 50 ohm output is not being preserved as it
>goes past the sensor stripline.

What does that mean?

>I think the freq coverage for this model
>is about 10.5 to 11.5GHz. Keep in mind that this really is the frist
>time I have seen microwave TX's up close so my gut feelings about track
>sizes/spacing may be way off.

Check the resistor.

73's
Richard Clark, KB7QHC

1870. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 06:18:15 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44053ca7_4@newsfeed.slurp.net>
Source record: 63931

I can't prove this but I suspect there will be very little difference.
The wavelength on 80/75 meters is so much longer than the car body that
going from a low mount to a high one will be almost unnoticeable.
Ground loss will be about the same because the capacitance between the
car body and ground is the important factor and does not depend on
where the whip is mounted.

What will matter greatly is the Q of the coil. Make it inherently as
high as you can and keep it away from metal parts of the car body.
Resonate it and match it and you will have lots of fun. 80/75 is a
great band for mobile and much underused.

Bill, W6WRT

1871. Re: Help colinear building problems

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 07:59:20 UTC
From: BKR <TAKEOUTTHISPARTrchvid7@lycos.comREMOVE>
Message-ID: <44055454$1@nntp.zianet.com>
Source record: 63932

Your link was slightly in error. Here is a corrected version:
http://wireless.gumph.org/articles/homemadeomni.html

Jerry Martes wrote:
> <tucker@conninc.com> wrote in message
> news:1141169364.174650.133280@i39g2000cwa.googlegroups.com...
>
>>Im trying to build a 6dB simple colinear for my 2.4g wireless setup.
>>Im using a simple setup
>>from:
>>
>>//martybugs.net/wireless/collinear.cgi
>>
>>It uses a short piece of 12ga copper house wire with just two one turn
>>loops at 1/2 wave & 3/4 wave. I have access to a network analyzer @
>>work so i tried measuring the antenna'but come up with 1.4 g & 3.4 g.
>>No matter what i do i cant get the antenna near the 2.4 band.
>>Over the years Ive build many amateur band antennas of all types but
>>this ones got the best
>>of me.
>
>
>
> Hi Marty
>
> Would you be open to trying a different configuration?? This site shows
> how to build colinear arrays from lengths of coax
>
> http://wireless.gumph.org/articles/homemadeomni
>
> Jerry
>
>
>
>

1872. pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 10:55:02 UTC
From: condor <condorcipo@libero.it>
Message-ID: <a4fNf.14012$A83.368431@twister1.libero.it>
Source record: 63933

I will made a dipole for 10.1 Mhz v inverted, with total lenght 15 mtrs.
What is the appropriate balun ? 1:1 1:2 1:5 or others ? tnx

1873. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 11:59:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <h0gNf.55429$dW3.49795@newssvr21.news.prodigy.com>
Source record: 63934

Bill Turner wrote:
> I can't prove this but I suspect there will be very little difference.
> The wavelength on 80/75 meters is so much longer than the car body that
> going from a low mount to a high one will be almost unnoticeable.
> Ground loss will be about the same because the capacitance between the
> car body and ground is the important factor and does not depend on
> where the whip is mounted.

What we found at the CA shootouts is that when the bottom
section runs closely parallel to the vehicle body, as it
does with a trailer hitch mount on an SUV, the field
strength is much lower than if that bottom section is
in the clear, e.g. mounted on the roof of the SUV. Of
course, roof mounting creates a different set of problems.
--
73, Cecil http://www.qsl.net/w5dxp

1874. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 12:12:43 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%cgNf.55430$dW3.11004@newssvr21.news.prodigy.com>
Source record: 63935

condor wrote:
> I will made a dipole for 10.1 Mhz v inverted, with total lenght 15 mtrs.
> What is the appropriate balun ? 1:1 1:2 1:5 or others ? tnx

What kind of feedline are you using? In any case,
a good 1:1 choke-balun is preferred.
--
73, Cecil http://www.qsl.net/w5dxp

1875. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 12:16:54 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <VU+yZgP2CZBEFAAH@ifwtech.co.uk>
Source record: 63936

Mike Speed wrote:
>> It is hard to visualize exactly how these crossovers happen on a
>> microscopic scale, but the physics of the skin effect dictate that it
>> *must* happen somehow.
>
>Theory: "...the physics of skin effect dictate that [it] *must* happen
>[*]somehow[*]...
>
>Now, compute the consequences of the theory to see if it is right what
>it would imply.
>
>Compare those computation results to experiment. If they disagree, the
>theory is wrong.
>
>If you can't apply this procedure, your statement cannot be verified
>scientifically.
>

Rubbish!

The word 'theory' has two different meanings - so different, they are almost the opposite of each other. And you are using the wrong one.

You are using the layman's meaning of 'an unproven speculation' - but in science, the word means almost the exact opposite. A scientific theory is "a well-substantiated explanation of some aspect of the natural world; an organized system of accepted knowledge that applies in a variety of circumstances to explain a specific set of phenomena" [1]. (In scientific language, an unproven speculation is called a hypothesis or a conjecture. It is specifically *not* called a theory.)

A *scientific* theory explains the underlying reasons for a huge number of different experimental and practical observations, so that they all mesh together and support each other. Theory supports observation; and observation supports theory. Equally important, the outside edge join up seamlessly with the theory and observations about related areas of science. This means that scientific 'theory' is vastly more than mere speculation: it has the power to predict what will happen in cases we haven't even looked at yet.

As I said, the crossovers between strands of braid are hard to visualize and predict in detail - but that is entirely our problem. Our lack of understanding doesn't change the way things work.

There is no absolute proof that the skin effect will apply to braided strands, but this is only a very small gap in our knowledge. At both

sides of that gap are situations where we're completely certain it does apply. Moreover, there is no rational reason to suppose the skin affect might fail to apply to braided strands.

Based on that solid body of theoretical and practical knowledge about the skin effect, it only needs a very small amount of additional speculation to bridge the gap in our knowledge about braid. Applying what we do know to what we don't, it immediately gives us a clear and simple explanation why the RF resistance of braid is greater than a smooth surface, and why it increases dramatically when the braid is corroded.

This is a perfectly normal application of scientific logic to bridge small gaps in our knowledge. Since nothing can ever be proved in absolute terms, I must philosophically decline your challenge to waste time on modeling it in detail :-)

In terms of strict logic, the onus is on you to find a way to disprove it and to offer something else in its place. Good luck with that.

[1] http://wordnet.princeton.edu/perl/webwn?s=theory

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1876. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 12:28:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ArgNf.55431$dW3.32562@newssvr21.news.prodigy.com>
Source record: 63937

Ian White GM3SEK wrote:
> Our lack of understanding doesn't change the way things work.

Neither does our understanding. :-)
--
73, Cecil http://www.qsl.net/w5dxp

1877. Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 13:57:51 UTC
From: Jeff Dieterle <jdieter@nospam.carlnet.org>
Message-ID: <afeb0$4405a863$424980aa$9130@COMTECK.COM>
Source record: 63938

Can anyone direct me to a web sight that explains the differences between the various coax cables, RG6, RG8, RG11, RG59. From what I've seen it basically the gauge of the conductor.

1878. Re: Q about balanced feed line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 15:04:23 UTC
From: chuck <nospam@nospam.net>
Message-ID: <XJiNf.5233$S25.3953@newsread1.news.atl.earthlink.net>
Source record: 63939

I keep forgetting some of these principles.

Thanks very much for the detailed and helpful explanations, Roy.

73,

Chuck

Roy Lewallen wrote:
> chuck wrote:
>
>> As a follow-up, is there a practical way to determine how much current
>> unbalance will cause a one dB reduction in power delivered to the
>> antenna, the "lost power" being that power radiated by the
>> transmission line?
>>
>> It seems like a rather complex modeling problem.
>>
>> Thanks!
>>
>> Chuck, NT3G
>
>
> Nope. You can't generally say that one part of an antenna is radiating a
> particular amount of the total power. Each part of the antenna creates a
> field, and it interacts with the fields from all other parts of the
> antenna. The total power radiated has to equal the total power input
> less loss, but that's all you can say for sure. An example will help
> illustrate the problem. Consider a parasitic element in a Yagi. It has
> considerable current and contributes a great deal to the overall
> pattern. Yet the total power input to the Yagi element is zero. With
> zero power input, it can't, by itself, be radiating any power. What it
> does is intercept some of the power radiated by the driven element and
> re-radiates it with a different phase and amplitude. So how would you
> apportion the power radiated by the driven element and the parasitic
> element?
>
> You might take a look at the current in the driven element and note that
> it increases or decreases as you put the parasitic element in place and
> remove it. But the current can either increase or decrease, depending on
> the length and spacing of the parasitic element. So has the parasitic
> element increased or decreased the power radiated by the driven element?
> There's no answer.
>
> You can look at the change in pattern in some idealized cases by

> modeling. This can tell you what range of effects you might expect in a
> real situation.
>
> Roy Lewallen, W7EL
>

1879. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 15:19:37 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <alqgd3-kgd.ln1@p400bob.personal.cox.net>
Source record: 63942

Hi Richard

>>I was surprised that the sensor line was so long and so

> On the order of 1.5 cM?

It is a "U shape". The section parallel to the output stripline is maybe
1cm long (going from memory). The leg length may then put the total size
at more like 2cm.

>>I am thinking also that the 50 ohm output is not being preserved as it
>>goes past the sensor stripline.

> What does that mean?

I am suggesting that given the proximity of the sensor section it
presents a significant Z bump. Like I said I dont have a feeling for the
track dimensions for stripline etc at microwave. Not that it wouldnt be
difficult to look it up mind you!

>>I think the freq coverage for this model
>>is about 10.5 to 11.5GHz. Keep in mind that this really is the frist
>>time I have seen microwave TX's up close so my gut feelings about track
>>sizes/spacing may be way off.

> Check the resistor.

One of the first things done. At DC of course. Dont think I ever
replaced it. Was considering playing with it last time but since moving
the frequency also bought it back to normal operating conditon I couldnt
see it as a reason.

Cheers Bob VK2YQA

1880. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 15:48:55 UTC
From: Wes Stewart <*n7ws*@yahoo.com>
Message-ID: <nhgb02p81no2hfdr8seclb5chieuketdbo@4ax.com>
Source record: 63940

On Wed, 1 Mar 2006 08:57:51 -0500, "Jeff Dieterle"
<jdieter@nospam.carlnet.org> wrote:

|Can anyone direct me to a web sight that explains the differences between
|the various coax cables, RG6, RG8, RG11, RG59. From what I've seen it
|basically the gauge of the conductor.

http://www.timesmicrowave.com/content/pdf/tl14/tl14_catalog.pdf

1881. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 15:58:11 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141228691.533046.197530@p10g2000cwp.googlegroups.com>
Source record: 63941

How thick is the board material, and what material is it? The propagation velocity depends on the permittivity (dielectric constant) of the material. The impedance depends on the material and the spacings and trace widths. Presumably there's a ground plane behind the microstrip lines (else they aren't microstrip). There are many web sites that will let you play with microstrip designs, and some that will give you the response of a coupler like you're describing. Do a web search for things like "directional coupler" and "90 degree [microstrip] hybrid". But if you plot the coupler's coupling versus frequency, you'll find it's zero at DC, increasing to a fairly broad maximum when the freq makes it 1/4 wave long (accounting for the velocity factor), and falling again to zero at twice that frequency where the line is 1/2 wave long. That pattern repeats. If you account for the response, the coupler is useful over a broad range of frequencies, as the directivity stays good even as the coupling decreases (if it's accurately made). You can extend the frequency range (make the peak even broader) by "tapering" the coupling. (Easier to see in a picture than trying to explain in words...basically a cascade of sections, with the center one coupled most closely.)

A point to note: if you make the coupled line say 5/4 wave long at 10GHz, it will couple nicely at 10GHz, but you only have to move by 2GHz in either direction to hit a null at 4/4 and 6/4 wave long for the same physical line length. But if you make the coupled line 1/4 wave long, then you don't see a null till 20GHz, and the coupler should be quite useable between 8 and 12GHz. You can make the coupled section short by leading the ends to the 50 ohm load and the diode detector away from the coupled section, at right angles to it, so you don't have to worry about the length of the resistor and the diode adding in some difficult-to-calculate way to the overall length. Perhaps they already are done that way, but from your description that's not clear to me.

Cheers,
Tom

1882. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 16:14:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <DLjNf.55466$dW3.43168@newssvr21.news.prodigy.com>
Source record: 63943

Jeff Dieterle wrote:
> Can anyone direct me to a web sight that explains the differences between
> the various coax cables, RG6, RG8, RG11, RG59. From what I've seen it
> basically the gauge of the conductor.

Owen has provided a nifty transmission line analysis tool at:

http://www.vk1od.net/tl/tllce.php

By clicking on a particular type of transmission line
and doing an analysis, some of the important characteristics
of that particular type of transmission line will be displayed
along with the results of the analysis.

The ARRL Handbook contains a lot of information on the
different kinds of transmission lines as does the ARRL
Antenna Book.

"Wirebook IV", available from www.thewireman.com, is probably
a good read and reference. I have "Wirebook III" with 60
pages of information. "Wirebook IV" contains four times that
number of pages. When I am looking for information on
transmission lines, I reach for "Wirebook III" which is
never out of reach at my QTH.
--
73, Cecil http://www.qsl.net/w5dxp

1883. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 17:43:51 UTC
From: nm5k@wt.net
Message-ID: <1141235031.104775.60590@t39g2000cwt.googlegroups.com>
Source record: 63944

What we found at the CA shootouts is that when the bottom
section runs closely parallel to the vehicle body, as it
does with a trailer hitch mount on an SUV, the field
strength is much lower than if that bottom section is
in the clear, e.g. mounted on the roof of the SUV.....

I often wonder about this myself, but never get around to trying a
bumper mount. In the past, I've always preferred to have the lower
mast and coil as clear of the body as possible. But on the other
hand, if I mounted the base on the bumper, I could have a longer
mast below the coil. It's hard to decide which would be better on
paper. But...On my "play" truck, I decided to go whole hog. I
mounted the base of the antenna on the rear pillar of my cab,
back behind my head. The base of the antenna is appx 64 inches
off the ground. Yes, it kicks butt... But I sometimes wonder how
it would do with the bumper mount, and longer lower mast. The
problem is I have campers on both of my trucks, and have always
been afraid to have the lower mast right up against the back tailgate,
and camper. It's hard to decide of the longer antenna would outweigh
the higher mount, and shorter antenna. I think really the only way to
know for sure is to actually try and compare both.
But in the past, and present, I'm a "high mounter" as far as mobile
whips.
BTW, I was out camping in Utopia TX about 2 months ago, and had
the chance to really give that truck and antenna a good workout.
It was browning the food. I was S9 plus to all TX stations, and even
S 9 to a Salt Lake City puter receiver listened to on the internet.
That was 80m...On 40m, it's even better. Course, that antenna when
parked is 14 ft tall, and has the coil at 8 ft from the base. It's 11
ft
tall in the driving mode. Even the short version is tall, when mounted
on the cab of that truck. The radio was the 706 barefoot. I use no
amp when mobile. I do know it's really bad news to have the coil
near body metal. But I've never had that problem yet on my various
vehicles.
MK

1884. Re: About dipoles and current/voltage nodes

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 18:03:52 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <rvnb02lofr90jl5inrct3q6lvug95qdo9h@4ax.com>
Source record: 63945

On Wed, 01 Mar 2006 09:19:37 -0600, Bob Bob <bob3bob3@cox.net> wrote:

>> Check the resistor.
>
>One of the first things done. At DC of course. Dont think I ever
>replaced it. Was considering playing with it last time but since moving
>the frequency also bought it back to normal operating conditon I couldnt
>see it as a reason.

Hi Bob,

DC is so remote from the application as to be only an approximation.
There's also the prospects of reactance to consider too. When you say
you can see a frequency dependency, you are almost guaranteeing that
"tuning" has been injected into an otherwise wideband design.

From your position in the company you have two paths:
1. Announce the design is FUBAR, or
2. Find an ad-hoc solution and forget theory because you are in no
position to re-engineer the design.

#2 is a dangerous path to take for the sake of the company's
perspective, although it may be more politic if the design department
is populated with prima-donnas.

#1 will accomplish one of two things, the design will be corrected, or
you will be educated - possibly both. Most designers appreciate
hearing what your experience has revealed. Most of my techs enjoyed
pounding my designs to find the weak seams. One fellow had a small
transistor radio that he would put on top of the microprocessor to
listen to the software running. He could always tell when one of my
patches went south.

73's
Richard Clark, KB7QHC

1885. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 18:29:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <xKINf.36179$Jd.27783@newssvr25.news.prodigy.net>
Source record: 63946

nm5k@wt.net wrote:
> What we found at the CA shootouts is that when the bottom
> section runs closely parallel to the vehicle body, as it
> does with a trailer hitch mount on an SUV, the field
> strength is much lower than if that bottom section is
> in the clear, e.g. mounted on the roof of the SUV.....
>
> I often wonder about this myself, but never get around to trying a
> bumper mount. In the past, I've always preferred to have the lower
> mast and coil as clear of the body as possible. But on the other
> hand, if I mounted the base on the bumper, I could have a longer
> mast below the coil.

What worked like a charm for me was using the trailer hitch
hole on my GMC pickup and removing the tailgate. I looked
for a fiberglass aftermarket tailgate but couldn't find one.
--
73, Cecil http://www.qsl.net/w5dxp

1886. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 18:57:39 UTC
From: dplatt@radagast.org
Message-ID: <120brl3p0a1rh94@corp.supernews.com>
Source record: 63947

In article <h0gNf.55429$dW3.49795@newssvr21.news.prodigy.com>,
Cecil Moore <mycall@arrl.net> wrote:

>What we found at the CA shootouts is that when the bottom
>section runs closely parallel to the vehicle body, as it
>does with a trailer hitch mount on an SUV, the field
>strength is much lower than if that bottom section is
>in the clear, e.g. mounted on the roof of the SUV.

That seems to match up with various peoples' experiences that I've heard. Close spacing in this way makes the signal weaker, and also seems to make the antenna more difficult to tune/match properly.

This also makes sense from an engineering point of view. The closely-parallel spacing of the bottom section and the metal vehicle body would form a transmission line of sorts. This transmission-line section would not radiate much (or efficiently) - its radiation resistance would be quite low. As a result, the antenna's feedpoint impedance would be lower than otherwise (requiring a more aggressive impedance step-up of some sort to match a 50-ohm line).

The coil and whip would be above the body, and would still be able to radiate, but you'd be left with something akin to a bottom-loaded whip with no high-current radiating section, rather than a center-loaded radiator with a low-loss high-current radiating section below the coil.

In effect, a close/parallel mounting of this sort would seem to sacrifice much of the radiating power of this type of antenna.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

1887. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 21:39:03 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <dvoNf.1912$Uc2.191@fed1read04>
Source record: 63948

Several URL's to look at

http://ac6v.com/techref.htm#coax

--
CL -- I doubt, therefore I might be !

"Jeff Dieterle" <jdieter@nospam.carlnet.org> wrote in message
news:afeb0$4405a863$424980aa$9130@COMTECK.COM...
> Can anyone direct me to a web sight that explains the differences between
> the various coax cables, RG6, RG8, RG11, RG59. From what I've seen it
> basically the gauge of the conductor.
>

1888. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 21:53:05 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <5JoNf.7747$Ui.2219@edtnps84>
Source record: 63949

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:120acppce6jle62@corp.supernews.com...
> Frank wrote:
>>
>> As I understand NEC; large errors can be introduced by junctions of
>> dissimilar wire diameters, and in particular when the wires are at 90
>> deg. Therefore, when you have designed your "GH" inductors, the rest of
>> the antenna should by constructed of the same diameter wire. This may be
>> difficult since Dan is using two coils of significantly different Qs. I
>> guess you could overcome this problem by varying the conductivity of the
>> inductor to obtain the desired Q. Also, since segmentation tends to be
>> relatively high in a helix, should segment length tapering be applied to
>> those segments adjacent to the helix?
>>
>> Frank, VE6CB
>
> It's difficult to give an absolute answer to these questions, but some
> general comments and guidelines should help.
>
> First, the error introduced by NEC-2 when wires of dissimilar diameter are
> connected is generally small, unless the wires are grossly different. This
> error can be minimized by making the segments as *long* as possible
> adjacent to the junction, which of course is contrary to the general
> principle that more segments are better. Even a small error can cause
> major changes in the pattern when the dissimilar diameter wires are in a
> parasitic element. EZNEC and a number of other programs have a built-in
> method of avoiding this problem for certain antenna types, but plain NEC-2
> doesn't. NEC-4 is relatively free of this problem, but it's quite
> expensive for hobby use.
>
> The Q of an inductor is determined by the inductance and the loss. The
> loss is a function of the dielectric, wire resistance, and radiation
> (which isn't really loss, but lowers Q as though it were). NEC type
> programs automatically account for the radiation, and it's easy to include
> wire loss. So assuming negligible dielectric loss, the programs should
> predict Q fairly accurately -- except for proximity affect. Proximity
> effect could be modeled in NEC by increasing the resistivity of the wires
> in the coil. EZNEC currently allows only a single wire resistivity for the
> whole model (although this will probably change in the next version).
> However, since the overall loss will be dominated by the inductors, the
> higher resistivity could be specified for the whole model without
> sacrificing significant accuracy. Alternatively, a number of resistive
> loads could be inserted in the inductors.
>

> Segment length tapering usually isn't necessary with NEC based programs,
> unless there's a source near a place where the segment length changes. An
> average gain check should be run to determine if there's a problem. If
> there is, segment length tapering is one tool which can be tried in
> improving the average gain.
>
> Roy Lewallen, W7EL

Thanks for the information Roy, all remarks noted and saved. Will see what
I can do to generate some realistic helical models.

Frank VE6CB

1889. 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 22:21:10 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <q7pNf.48851$g47.20547@tornado.tampabay.rr.com>
Source record: 63950

Just purchased a (tri-band 2, 1.25, .7 meters) Kenwood TH-F6A HT and was wondering what I should use for a base antenna that will be over 60ft high (bet I'll get tons of intermod). One thought is to purchase the best tri-bander available or, perhaps there is too much compromise with an all-in-one. Would you use a dual bander and a mono, which band is the dual & which the mono or 3 monos? Of course with anything other than a tri-bander, a triplexer will be needed. Oh what trying decisions a ham must make! Any comments most welcomed.

73s
west
AF4GC

1890. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 22:42:37 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <du580tqgi2@engnntp2.cig.mot.com>
Source record: 63951

Do a Google on : Coax RG8 belden RG58 Loss or variations thereof...
There is loss, impedance and size as the primary things that are important.

73, Steve, K9DCI
"Jeff Dieterle" <jdieter@nospam.carlnet.org> wrote in message
news:afeb0$4405a863$424980aa$9130@COMTECK.COM...
> Can anyone direct me to a web sight that explains the differences between
> the various coax cables, RG6, RG8, RG11, RG59. From what I've seen it
> basically the gauge of the conductor.
>
>

1891. Re: 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 23:57:36 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <7tcc02llrd0amkfbjjmcark72kl7spektq@4ax.com>
Source record: 63953

On Wed, 01 Mar 2006 22:21:10 GMT, "west" <westley@tampabay.rr.com>
wrote:

>what I should use for a base antenna that will be over 60ft high

Hi West,

A simple tribander should be able to hit a similar tribander, or at
least a quarterwave just as high 20 miles away. Repeaters should be a
breeze to hit unless you are DXing garage repeaters. I can't see that
you need more gain nor complexity unless its to make up for line loss
climbing that tower. In that case, add a brick amplifier at the input
to the line.

73's
Richard Clark, KB7QHC

1892. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-01 23:58:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <du5cei$c6n$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63952

"Cecil Moore" wrote
> What kind of feedline are you using? In any case,
> a good 1:1 choke-balun is preferred.
==========

How do you select a good choke balun from amongst all the others.

Reg.

1893. Re: 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 00:00:58 UTC
From: jgboyles@aol.com
Message-ID: <1141257658.103134.89740@e56g2000cwe.googlegroups.com>
Source record: 63954

west wrote:
> Just purchased a (tri-band 2, 1.25, .7 meters) Kenwood TH-F6A HT and was
> wondering what I should use for a base antenna that will be over 60ft high
> (bet I'll get tons of intermod). One thought is to purchase the best
> tri-bander available or, perhaps there is too much compromise with an
> all-in-one. Would you use a dual bander and a mono, which band is the dual &
> which the mono or 3 monos? Of course with anything other than a tri-bander,
> a triplexer will be needed. Oh what trying decisions a ham must make! Any
> comments most welcomed.
>
> 73s
> west
> AF4GC

If I were dead set on all 3 bands, I would use a seperate ground plane
antenna for each band, and an antenna switch. The ground planes are
small.
Gary N4AST

1894. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 01:26:17 UTC
From: Jerry <joxendi@bellsouth.net>
Message-ID: <1OrNf.42759$X7.21026@bignews7.bellsouth.net>
Source record: 63955

"Cecil Moore" <mycall@arrl.net> wrote in message
news:xKlNf.36179$Jd.27783@newssvr25.news.prodigy.net...
> nm5k@wt.net wrote:
>> What we found at the CA shootouts is that when the bottom
>> section runs closely parallel to the vehicle body, as it
>> does with a trailer hitch mount on an SUV, the field
>> strength is much lower than if that bottom section is
>> in the clear, e.g. mounted on the roof of the SUV.....
>>
>> I often wonder about this myself, but never get around to trying a
>> bumper mount. In the past, I've always preferred to have the lower
>> mast and coil as clear of the body as possible. But on the other
>> hand, if I mounted the base on the bumper, I could have a longer
>> mast below the coil.
>
> What worked like a charm for me was using the trailer hitch
> hole on my GMC pickup and removing the tailgate. I looked
> for a fiberglass aftermarket tailgate but couldn't find one.
> --
> 73, Cecil http://www.qsl.net/w5dxp

With that in mind, I have a friend who has a Ford Exploder--I mean, EXPLORER :) --- with his DK3 mounted on a homebrew mount level with the rear bumper. The bad part of it (IMHO) is the loading coil is level with the body about where the rear window is and about 8 inches from the body. I mentioned to him that it would be better to get the coil up in the clear above the truck, but he is says he can't get in his carport. Well, what about this: move the coil UP to clear the body and use a shorter whip? IOW, faced with the lesser of two evils, which would be better. Left as is with longer whip and putting up with the loss caused by proximity to body metal, or coil clearing the top of the truck and a shorter whip--even it it has to be 5 feet instead of 6 1/2? I voted for the higher coil and shorter whip. What say ye? :)

73

Jerry
K4KWH

1895. Re: need help with H antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 01:28:10 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <44064a2a$0$7335$39cecf19@news.twtelecom.net>
Source record: 63956

Jim wrote:

> I need help in building an H type of tracking antenna for use around 166-167
> mhz. This is for wildlife tracking. I have a couple of handheld 3 element
> Yagi's that I built using YagiCad to do the math, and they work well, but
> they are big and clunky.
>
> There are times when I am willing to sacrifice the good f/b ratio of the
> yagi for convienience, for instance when working in brushy woods. I have
> used an H for tracking at 151 mhz, but of course, I can't use that one for
> 166.
>
> My tracking receiver, a King portable, has a BNC connector, so I can
> interchange antennas quickly.
>
> Is there a web page or magazine article that can help me design my H, or can
> someone share their experience?
>
> Thanks
> Jim
>
>
I am assuming you mean a 2 element beam with both elements driven.

If so, I would recommend trying to make a 2 meter version of Roy W7EL's
version of the ZL special. I just messed around with his downloadable
program for 15 minutes and got a reasonable version hacked up for your
frequency. The impedance wasn't perfect, about 1.5 at best and about 3
to 1 SWR +-1.5 MHz, but you are receive only, so that's not a big deal.

Heck, he may notice this response and tell you he's done one and what he
came up with for lengths.

Tom
K0TAR

1896. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 01:54:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120ck2den5gmhc2@corp.supernews.com>
Source record: 63957

Reg Edwards wrote:
>
> How do you select a good choke balun from amongst all the others.
> ---

The important characteristic is common mode impedance. Tie the two input conductors together and the two output conductors together, and measure the input-to-output impedance. This can be done in various ways, most easily with an antenna analyzer, or by other means. The higher the impedance, the better. 1000 ohms seems to be a good number to shoot for, with 500 ohms probably being ok for most applications. The angle of the impedance doesn't matter unless you're running high power, in which case it might be necessary to keep the impedance more reactive than resistive to prevent excessive core heating.

A good choke balun for multiple band use will have a high common mode impedance on all bands on which it'll be used. Narrower band ones can be connected in series as an alternative.

Roy Lewallen, W7EL

1897. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 04:12:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nguNf.17219$rL5.15156@newssvr27.news.prodigy.net>
Source record: 63958

Reg Edwards wrote:
> How do you select a good choke balun from amongst all the others.

I roll my own. I have 8 FB-77-5621 cores over a piece
of RG-400 in series with an FT-240-61 with ten turns of
RG-400. The latter comes in a ~$10 balun kit from Amidon.
--
73, Cecil http://www.qsl.net/w5dxp

1898. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 04:15:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <IjuNf.17223$rL5.2871@newssvr27.news.prodigy.net>
Source record: 63959

Jerry wrote:
> I voted for the higher coil and shorter whip. What say ye? :)

Within reason, the higher the coil, the better. I only had
one foot of antenna above my coil, a one foot section
upon which was mounted a large horizontal top hat.
--
73, Cecil http://www.qsl.net/w5dxp

1899. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 04:29:51 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440674bf_3@newsfeed.slurp.net>
Source record: 63960

ORIGINAL MESSAGE:

nm5k@wt.net wrote:

> What we found at the CA shootouts is that when the bottom
> section runs closely parallel to the vehicle body, as it
> does with a trailer hitch mount on an SUV, the field
> strength is much lower than if that bottom section is
> in the clear, e.g. mounted on the roof of the SUV.....

~~~~~~
No doubt that is correct. So how about this: I have a '95 Thunderbird which I dearly love and don't want to cut holes in. I've been think of going to a welding shop and having a metal piece made which I could bolt to the frame in the back and which would stick out about six inches or so behind the rear bumper, and installing a ball mount on it. This will keep the lower part of the antenna about a foot away from the body and allow a nice, long whip overall. The loading coil would be in the center, homebrew of course. :-)

And not a hole in sight.

Comments?

Bill, W6WRT
~~~~~~

1900. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 04:30:34 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440674ea$1_3@newsfeed.slurp.net>
Source record: 63961

ORIGINAL MESSAGE:

nm5k@wt.net wrote:

> What we found at the CA shootouts

~~~~~~
Speaking of shootouts, are any scheduled for this year anywhere?

Bill, W6WRT
~~~~~~

1901. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 04:34:52 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <440675EC.9070204@comcast.net>
Source record: 63962

Frank,

I observed by playing with the relative inductor values on the vertical segment
and the radial elements that it was possible to move the relative feedpoint.
This supports tuning the antenna by either inductor.

Reg's c_poise program predicts a 75 uH loading coil.

I am excited with prospect of coil models.

Thanks - Dan

Frank's wrote:
> "Roy Lewallen" <w7el@eznec.com> wrote in message
> news:120acppce6jle62@corp.supernews.com...
>
>>Frank wrote:
>>
>>>As I understand NEC; large errors can be introduced by junctions of
>>>dissimilar wire diameters, and in particular when the wires are at 90
>>>deg. Therefore, when you have designed your "GH" inductors, the rest of
>>>the antenna should by constructed of the same diameter wire. This may be
>>>difficult since Dan is using two coils of significantly different Qs. I
>>>guess you could overcome this problem by varying the conductivity of the
>>>inductor to obtain the desired Q. Also, since segmentation tends to be
>>>relatively high in a helix, should segment length tapering be applied to
>>>those segments adjacent to the helix?
>>>
>>>Frank, VE6CB
>>
>>It's difficult to give an absolute answer to these questions, but some
>>general comments and guidelines should help.
>>
>>First, the error introduced by NEC-2 when wires of dissimilar diameter are
>>connected is generally small, unless the wires are grossly different. This
>>error can be minimized by making the segments as *long* as possible
>>adjacent to the junction, which of course is contrary to the general
>>principle that more segments are better. Even a small error can cause
>>major changes in the pattern when the dissimilar diameter wires are in a
>>parasitic element. EZNEC and a number of other programs have a built-in
>>method of avoiding this problem for certain antenna types, but plain NEC-2
>>doesn't. NEC-4 is relatively free of this problem, but it's quite
>>expensive for hobby use.
>>
>>The Q of an inductor is determined by the inductance and the loss. The
>>loss is a function of the dielectric, wire resistance, and radiation

>>(which isn't really loss, but lowers Q as though it were). NEC type
>>programs automatically account for the radiation, and it's easy to include
>>wire loss. So assuming negligible dielectric loss, the programs should
>>predict Q fairly accurately -- except for proximity affect. Proximity
>>effect could be modeled in NEC by increasing the resistivity of the wires
>>in the coil. EZNEC currently allows only a single wire resistivity for the
>>whole model (although this will probably change in the next version).
>>However, since the overall loss will be dominated by the inductors, the
>>higher resistivity could be specified for the whole model without
>>sacrificing significant accuracy. Alternatively, a number of resistive
>>loads could be inserted in the inductors.
>>
>>Segment length tapering usually isn't necessary with NEC based programs,
>>unless there's a source near a place where the segment length changes. An
>>average gain check should be run to determine if there's a problem. If
>>there is, segment length tapering is one tool which can be tried in
>>improving the average gain.
>>
>>Roy Lewallen, W7EL
>
>
> Thanks for the information Roy, all remarks noted and saved. Will see what
> I can do to generate some realistic helical models.
>
> Frank VE6CB
>
>

1902. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 05:02:28 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <E%uNf.10087$dg.2447@clgrps13>
Source record: 63963

Dan, I have been trying to replicate your inductors with NEC. It is a bit tedious, just guessing wire gauge, coil diameter etc., to obtain the desired inductance and Q. What are the physical dimensions of your inductors?

Have you had any luck with GH? You may have a problem with 4nec2 since you must have a GM card along with the GH.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:4403EB86.3020005@comcast.net...
> Good question. I will play with that. That said, based on Roy's comment at
> minimum the load should appear nearly pure resistive.
>
> I just tested the Autek with 6.25, 12.5, and 25 Ohm loads.
> 25 read 26
> 12.5 read 12 - 13 - 12 etc.
> 6.25 read mostly 7 with an occasional 6.
>
> I would say for non-reactive loads it is pretty close.
>
> Tomorrow - will be to experiment with non lumped inductors. That will be a
> challenge.
>
> Thanks - Dan
>
>
> Frank wrote:
>> "dansawyeror" <dansawyeror@comcast.net> wrote in message
>> news:4403C93F.2040700@comcast.net...
>>
>>>Frank,
>>>
>>>The Autek is remarkably close. I have used it to checkout 50 and 25 Ohm
>>>loads. For these two values it is very close. (It is battery level
>>>sensitive.)
>>>
>>>The couplers are a pair of M-C ZFDC 20-4's.
>>>
>>>Dan
>>
>>
>> Thanks Dan, I had forgotten about Mini-Circuits. Their price is hard to
>> beat. I may pick up one of the "PDC" series dual directional couplers.
>> Incidentally your code indicates resonance occurs at 3.54 MHz. I wonder

>> how the Autek behaves when subjected to a reactive load does it actually
>> get close to the magnitude?
>>
>> Frank

1903. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 05:35:43 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120d11fn5ontsb0@corp.supernews.com>
Source record: 63964

Bill Turner wrote:
>
> ~~~~~~
> No doubt that is correct. So how about this: I have a '95 Thunderbird
> which I dearly love and don't want to cut holes in. I've been think of
> going to a welding shop and having a metal piece made which I could
> bolt to the frame in the back and which would stick out about six
> inches or so behind the rear bumper, and installing a ball mount on it.
> This will keep the lower part of the antenna about a foot away from the
> body and allow a nice, long whip overall. The loading coil would be in
> the center, homebrew of course. :-)
>
> And not a hole in sight.
>
> Comments?
>
> Bill, W6WRT

I'm not sure why, but most amateurs don't seem to realize that the whip isn't an "antenna" and the car "ground", but each is half of a dipole-like antenna. The car part is often much more important with regard to radiation characteristics and efficiency than the whip part. With the arrangement you suggest, the antenna consists of a vertical wire -- the whip -- and a fat, horizontal "wire" -- the car. Whatever current flows into the whip, an equal current flows over the outside of the car, originating at the base of the whip.

Any antenna with a low horizontal wire will be quite lossy, because the wire's current will induce a heavy current in the lossy ground beneath the wire, or car.

The best arrangement, as others have pointed out, is to mount the antenna right at the center of the top of the car. This makes the car "wire" vertical, a much more efficient arrangement, which the "shootouts" consistently show. You'll also find that larger trucks, which effectively form a longer vertical "wire" for the car part, outdo smaller ones for the same whip.

Of course, sometimes you don't have any choice, and you just have to do the best you can. I once had a bumper mounted antenna consisting of a CB whip base loaded with an inductor wound on a powdered iron core to resonate on 40 meters. The car was a VW Squareback, so the antenna had the increased disadvantage of proximity between the square back and the antenna. As others have pointed out, this can reduce efficiency farther. Yet I had a successful QSO with JA while driving down Highway 101,

running 8 watts, CW. So you can still communicate and have lots of fun even with a very sub-optimal system. But anyone wanting to improve his system has a much better chance of doing it if he has a basic understanding of how the antenna really works.

Roy Lewallen, W7EL

1904. Re: need help with H antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 05:45:33 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120d1jtr6triu56@corp.supernews.com>
Source record: 63965

Tom Ring wrote:

> I am assuming you mean a 2 element beam with both elements driven.
>
> If so, I would recommend trying to make a 2 meter version of Roy W7EL's
> version of the ZL special. I just messed around with his downloadable
> program for 15 minutes and got a reasonable version hacked up for your
> frequency. The impedance wasn't perfect, about 1.5 at best and about 3
> to 1 SWR +-1.5 MHz, but you are receive only, so that's not a big deal.

For his application, shoot for the best F/B ratio -- that is, for element currents as close to equal and the correct phase -- as possible. The forward lobe of this antenna is broader than a 3 element Yagi. It would work best as a direction finding antenna by determining the direction of the null. Quite a bit of mismatch should be tolerable unless signals are extremely weak, but if an adequate match can't be achieved, it's simple to remedy with a simple matching network.

> Heck, he may notice this response and tell you he's done one and what he
> came up with for lengths.

Nope. I've never had occasion to design an antenna for 166 MHz. One designed for 2 meters (which I haven't done either) won't work satisfactorily at 166.

Roy Lewallen, W7EL

1905. Factory pressed dvd movies, ps2, psp & xbox backups for sale !!!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 06:32:21 UTC
From: Movieworld <nintendogs@time.net.my>
Message-ID: <1141281141.084025.194770@u72g2000cwu.googlegroups.com>
Source record: 63966
Cross-posted to: rec.radio.amateur.antenna,ct.forsale,mcmaster.buysell

We're offering all the latest factory pressed high quality dvd movies, ps2, psp and xbox silvers with factory printed colour inserts at fantastic prices, whether for personal use or reselling. We're shipping worldwide with various shipping methods. For resellers, please contact us for bulk discounts.

For a complete list and prices, please email us at movieworld@time.net.my

(Please state the type of list that you want and tell us your location as the prices varies for different locations. If you're reseller, please state the quantity you wish to order per shipment and we'll quote you a wholesale price depending on the quantity ordered.)

* If you need references, we can provide them to you.

1906. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 08:31:09 UTC
From: Mike Speed <mike8s2@yahoo.com>
Message-ID: <1141288269.299944.41260@v46g2000cwv.googlegroups.com>
Source record: 63967

> Rubbish!

No, it isn't. That was a paraphrase from, "The Character of Physical Law," by Richard P. Feynman, page 156, half-way down. Also from "The Character of Physical Law," bottom, page 156, "It is scientific only to say what is more likely and what less likely, and not to be proving all the time the possible and impossible."

Therefore, it is more likely what Richard P. Feynman said about scientific theories is right and what you said about scientific theories is wrong.

1907. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 08:55:57 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <4406b31d_1@newsfeed.slurp.net>
Source record: 63968

Roy Lewallen wrote:

> The best arrangement, as others have pointed out, is to mount the
> antenna right at the center of the top of the car. This makes the car
> "wire" vertical, a much more efficient arrangement, which the
> "shootouts" consistently show. You'll also find that larger trucks,
> which effectively form a longer vertical "wire" for the car part,
> outdo smaller ones for the same whip.

~~~~~~

Well, maybe. The problem is, the higher the mounting point, the shorter the whip has to be to be legal to drive down the road. If your car was 13 feet five inches tall, your whip could only be one inch long. How efficient would that be on 80 meters? The point being, everything is a tradeoff of one thing for another. If the shootouts say a rooftop is best, ok, but I have to say I'm surprised. At a relatively low frequency like 80 meters, the car body is more of a coupler to the earth rather than a real "ground" of it's own. Given that, then the longer the whip part, the better.

HF mobile antennas are a fascinating subject and one of these days I will set up a "shootout" range on my 2.5 acres here in the desert and do some shooting of my own.

Bill, W6WRT
~~~~~~

1908. Re: using coax shield to create a loading coil ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 09:47:19 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <r2adRhPn8rBEFAkx@ifwtech.co.uk>
Source record: 63969

Mike Speed wrote:
>> Rubbish!
>
>No, it isn't. That was a paraphrase from, "The Character of Physical
>Law," by Richard P. Feynman, page 156, half-way down. Also from "The
>Character of Physical Law," bottom, page 156, "It is scientific only to
>say what is more likely and what less likely, and not to be proving all
>the time the possible and impossible."
>
>Therefore, it is more likely what Richard P. Feynman said about
>scientific theories is right and what you said about scientific
>theories is wrong.
>

Here's a clue: if even Feynman needed a whole book to cover the subject, is there any possibility that your "paraphrase" from half-way down one page might be incomplete, inaccurate or misleading?

The rubbish arises entirely from your habit of snipping bits from here and there, and quoting them out of context. The history of this thread shows that each time someone makes a considered reply, bringing back the whole context, you snip it all out again.

Enough of that game.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

1909. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 11:53:52 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <du6mcg$g47$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63970

"Cecil Moore" <mycall@arrl.net> wrote in message
news:nguNf.17219$rL5.15156@newssvr27.news.prodigy.net...
> Reg Edwards wrote:
> > How do you select a good choke balun from amongst all the others.
>
> I roll my own. I have 8 FB-77-5621 cores over a piece
> of RG-400 in series with an FT-240-61 with ten turns of
> RG-400. The latter comes in a ~$10 balun kit from Amidon.
> --
> 73, Cecil http://www.qsl.net/w5dxp

==========

Ten or more turns of twin, 18 awg, stranded, speaker cable is even
better.

Easier to make and has higher choke impedance and lower loss.

I don't know why you mess about with coax.

Reg.

1910. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 13:09:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <C8CNf.17308$rL5.17205@newssvr27.news.prodigy.net>
Source record: 63971

Bill Turner wrote:
> So how about this: I have a '95 Thunderbird
> which I dearly love and don't want to cut holes in. I've been think of
> going to a welding shop and having a metal piece made which I could
> bolt to the frame in the back and which would stick out about six
> inches or so behind the rear bumper, and installing a ball mount on it.
> This will keep the lower part of the antenna about a foot away from the
> body and allow a nice, long whip overall. The loading coil would be in
> the center, homebrew of course. :-)

The only way to improve on that on 75m would be to mount
a piece of sheet metal on fiberglass poles connected at
the ends of both bumpers. The piece of horizontal sheet
metal, located 13.5 feet from the ground, would have the
same footprint as the T-bird and would be used as the top
hat. You do want optimum performance don't you? :-)
--
73, Cecil http://www.qsl.net/w5dxp

1911. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 13:19:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zhCNf.17309$rL5.10636@newssvr27.news.prodigy.net>
Source record: 63972

Roy Lewallen wrote:
> I'm not sure why, but most amateurs don't seem to realize that the whip
> isn't an "antenna" and the car "ground", but each is half of a
> dipole-like antenna.

My S10 trailer hitch mounted configuration exhibited
considerable directivity toward the front of the
pickup on 17m.
--
73, Cecil http://www.qsl.net/w5dxp

1912. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 13:30:35 UTC
From: jon <jon@nospam.com>
Message-ID: <4406F37B.1B33CB65@nospam.com>
Source record: 63973

RG-8 is no longer a military standard
RG-213 is a better choice.

http://www.thewireman.com

he wrote a book !

http://www.belden.com

1913. 2m omnis and radiation takeoff angles - importance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 13:30:39 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <0l8jd3-mag.ln1@p400bob.personal.cox.net>
Source record: 63975

Hi NG

About ready to model and build a medium 2m antenna system. Probably run a EDZ with 5/8 elements off one side of the mast for vertical and a three element wide spaced thick element quad for horiz on the other side. The mast mount will form part of the model when I get to it. (Hoping for a cardioid pattern from the EDZ)

Main element material for both antennas will probably be 1/2" copper. (That will make the quad interesting to support!)

Sticking to the vertical system I am wanting to get a handle on how important the "problem" of desired low angle radiation is and what traps one should avoid. I am aware of the mast/coax decoupling issues. I also believe that the narrower the vertical beamwidth (or rather the less downward radiation) the less the ground reflection problem will be.

Also wondering if adjusting phase delay or amplitude variations between the 5/8 elements would be useful in lowering the pattern. (Something I will also be modelling) Feed would probably be a 4:1 coaxial balun.

Height will eventually be about 30ft above the house roof.

Any thoughts, ideas and debunking most welcome

Cheers Bob W5/VK2YQA

1914. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 13:34:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <gvCNf.17312$rL5.8757@newssvr27.news.prodigy.net>
Source record: 63974

Reg Edwards wrote:
> Ten or more turns of twin, 18 awg, stranded, speaker cable is even
> better.
>
> Easier to make and has higher choke impedance and lower loss.
>
> I don't know why you mess about with coax.

The optimum Z0 for the wire that is used is the square root
of the product of the input impedance and the output impedance.
I vary the length of my ladder-line to accomplish resonance
in my antenna system. The impedances seen at the output of
my balun averages 50 ohms. Thus, the optimum Z0 for my
balun wire is 50 ohms. Magnet wire will do that but speaker
cable won't. Ten turns of RG-400 is really convenient. I use
RG-400 for everything inside of the shack. All the 1/2" dia.
stuff is outside.
--
73, Cecil http://www.qsl.net/w5dxp

1915. Re: 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 14:28:01 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <620e025tnbgq20oqd0k9qq3574d967of7r@4ax.com>
Source record: 63876

In my experience a super antenna for repeater operation is a problem.
You bring up enough machines to create your own QRM. Keep it simple.

On Wed, 01 Mar 2006 22:21:10 GMT, "west" <westley@tampabay.rr.com>
wrote:

>Just purchased a (tri-band 2, 1.25, .7 meters) Kenwood TH-F6A HT and was
>wondering what I should use for a base antenna that will be over 60ft high
>(bet I'll get tons of intermod). One thought is to purchase the best
>tri-bander available or, perhaps there is too much compromise with an
>all-in-one. Would you use a dual bander and a mono, which band is the dual &
>which the mono or 3 monos? Of course with anything other than a tri-bander,
>a triplexer will be needed. Oh what trying decisions a ham must make! Any
>comments most welcomed.
>
>73s
>west
>AF4GC
>
John Ferrell W8CCW

1916. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 14:57:33 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <440707DD.1030601@comcast.net>
Source record: 63877

Frank,

A 'target' coil is 300mm x 300mm of 5/16 copper tubing. It is about 50 feet of tubing, a .5 pitch, and should be close to 75 uH. This should be close. From there simulation should show the best performance between varying the coils.

Thanks - Dan

Frank wrote:
> Dan, I have been trying to replicate your inductors with NEC. It is a bit
> tedious, just guessing wire gauge, coil diameter etc., to obtain the desired
> inductance and Q. What are the physical dimensions of your inductors?
>
> Have you had any luck with GH? You may have a problem with 4nec2 since you
> must have a GM card along with the GH.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:4403EB86.3020005@comcast.net...
>
>>Good question. I will play with that. That said, based on Roy's comment at
>>minimum the load should appear nearly pure resistive.
>>
>>I just tested the Autek with 6.25, 12.5, and 25 Ohm loads.
>>25 read 26
>>12.5 read 12 - 13 - 12 etc.
>>6.25 read mostly 7 with an occasional 6.
>>
>>I would say for non-reactive loads it is pretty close.
>>
>>Tomorrow - will be to experiment with non lumped inductors. That will be a
>>challenge.
>>
>>Thanks - Dan
>>
>>
>>Frank wrote:
>>
>>>"dansawyeror" <dansawyeror@comcast.net> wrote in message
>>>news:4403C93F.2040700@comcast.net...
>>>
>>>
>>>>Frank,

>>>>
>>>>The Autek is remarkably close. I have used it to checkout 50 and 25 Ohm
>>>>loads. For these two values it is very close. (It is battery level
>>>>sensitive.)
>>>>
>>>>The couplers are a pair of M-C ZFDC 20-4's.
>>>>
>>>>Dan
>>>
>>>
>>>Thanks Dan, I had forgotten about Mini-Circuits. Their price is hard to
>>>beat. I may pick up one of the "PDC" series dual directional couplers.
>>>Incidentally your code indicates resonance occurs at 3.54 MHz. I wonder
>>>how the Autek behaves when subjected to a reactive load does it actually
>>>get close to the magnitude?
>>>
>>>Frank
>
>
>

1917. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 15:40:21 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440711e5$1_1@newsfeed.slurp.net>
Source record: 63878

Cecil Moore wrote:

> The only way to improve on that on 75m would be to mount
> a piece of sheet metal on fiberglass poles connected at
> the ends of both bumpers. The piece of horizontal sheet
> metal, located 13.5 feet from the ground, would have the
> same footprint as the T-bird and would be used as the top
> hat. You do want optimum performance don't you? :-)

~~~~~~

I think my T-Bird might actually fly. :-)

73, Bill W6WRT
~~~~~~

1918. Re: Coax help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 16:01:49 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <ue3e02lun6f4d7nli2oac8116055ffp7rg@4ax.com>
Source record: 63879

On Thu, 02 Mar 2006 13:30:35 GMT, jon <jon@nospam.com> wrote:

>RG-8 is no longer a military standard
>RG-213 is a better choice.

Actually, it might be no better than RG-8, since -anyone- can make a cable and call it either. While there might be a specification, it doesn't mean the manufacturer's product has been submitted and qualified to the spec.

1919. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 16:56:15 UTC
From: richardharrison@webtv.net
Message-ID: <12478-440723AF-300@storefull-3258.bay.webtv.net>
Source record: 63880

Roy Lewallen, W7EL wrote:
"I`m not sure why, but most amateurs don`t seem to realize that a whip isn`t an "antenna" and the car "ground", but each is half of a dipole-like antenna."

Not exactly..

In a common balanced dipole, each half has the same current quantity and direction, though in one half the current flows toward the feedpoint while it flows away in the other half.

From such a dipole, both its halves contribute equally to its radiation.

Action of a common ground plane is different. When its balanced radials are perpendicular to its whip, radiation from its radials zeros out leaving the whip to do all the radiation. Ideally, a whip mounted on a vehicle or directly on the earth behaves the same. It is the whip which radiates.

An antenna is also called an aerial. It is defined as that part of a radio station which radiates or receives radio waves into or from space.

An antenna ground system is defined as that portion of an antenna system closely associated with the earth and including an extensive conducting surface which may be the earth itself.

Most radio amateurs have it right.

Best regards, Richard Harrison, KB5WZI

1920. FS: Heath Marauder Transmitter

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 17:50:02 UTC
From: NA <n6pjqnot@nospamarrl.net>
Message-ID: <efGNf.875$Bu6.828@tornado.socal.rr.com>
Source record: 63881
Cross-posted to:
rec.ham-radio.swap,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.boatanchors,rec.radio.swap

I have checked with the local shipping service.

Shipping via FEDX will be between $150 and $200 to most address on the US mainland.

I have seen Marauders not meet the reserve on Ebay at over $150 plus shipping.

I will sell this one for $100 plus the actual shipping cost charged by the local shipping store.

Thanks for reading Jim N6PJQ AT Hotmail

1921. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 20:16:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120ekkmb2nbrk75@corp.supernews.com>
Source record: 63882

Richard Harrison wrote:
> Roy Lewallen, W7EL wrote:
> "I`m not sure why, but most amateurs don`t seem to realize that a whip
> isn`t an "antenna" and the car "ground", but each is half of a
> dipole-like antenna."
>
> Not exactly..
>
> In a common balanced dipole, each half has the same current quantity and
> direction, though in one half the current flows toward the feedpoint
> while it flows away in the other half.
>
> From such a dipole, both its halves contribute equally to its radiation.
>
> Action of a common ground plane is different. When its balanced radials
> are perpendicular to its whip, radiation from its radials zeros out
> leaving the whip to do all the radiation. Ideally, a whip mounted on a
> vehicle or directly on the earth behaves the same. It is the whip which
> radiates.

A ground plane is a poor model of how currents flow along a car body.

Consider an antenna mounted on top of a car. From the base of the antenna, the current flows equally in all directions away from the base of the antenna, like a ground plane. This current doesn't contribute much radiation, for the reasons you state. But then it reaches the edge of the top of the car and flows downward. All the portions of the current are now flowing the same direction, and their fields don't cancel but add in phase. The net result is the same as if it were just flowing down a fat wire the height of the car. If the car is eight feet high, the field from the car will equal the field from an eight foot whip. In fact, unless the whip is top loaded to make the current uniform, the car will radiate more than the whip, because the capacitance of the car to ground will tend to give the car a uniform current distribution, like a top hat does to a whip. This will increase the radiated field strength from the car.

Now consider a bumper mounted antenna. The current will spread from the base and proceed around the car. More will probably flow on the bottom than the top and sides due to coupling with the ground, but all portions will be flowing in the same direction and all will radiate. There is no place on the car where the current distribution or flow pattern resembles current on a ground plane.

> An antenna is also called an aerial. It is defined as that part of a
> radio station which radiates or receives radio waves into or from space.
>
> An antenna ground system is defined as that portion of an antenna system
> closely associated with the earth and including an extensive conducting
> surface which may be the earth itself.

The problem here is that the currents don't care how you define things.
They flow where the physical laws dictate. Defining "ground" doesn't
make them behave differently.

> Most radio amateurs have it right.

If your view represents that of most amateurs, they don't.

Roy Lewallen, W7EL

1922. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 21:26:25 UTC
From: Jules <jhgskldhgskldhgskcvbyren@dhgkjhdytrn.com>
Message-ID: <6qJNf.25805$8d1.12957@read1.cgocable.net>
Source record: 63883

I think if it is too strong it will affect your eyes first, ears then nerves/brain last. There are lots of safety precautions for wx radar on aircraft and they are generally are under 10kw for small planes, x band radar. Large jets, c band. Then there are fighter aircraft whose targeting radar has been know to kill small animals around the runways. But those are out of favour now, low power is in.

Thierry wrote:
> Hi,
>
> I received this message from a colleague but I cannot answer him. I d
> not know these systems.
> Could you help me ?
>
> My company has installed a Radar Tower for Port survaillence. The tower
> is about 50 meter height on top of the of a 3 stories building roof and
> my office building just below the tower on the same level, 20 meter away
> from the tower. At the same time, the surrounding is my working area (
> Jetty Terminal for ships loading and unloading activities). I can say
> that I'll be around that area 12 hours a day for another 20 years.
>
> My question:
>
> Is it safe to work in that area????
>
> Thanks in advance
> Thierry
> http://www.astrosurf.org/lombry
>
>

1923. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 21:28:44 UTC
From: The Visitor <ksjhdsdfssjhfk@shduiysdfsrewh.com>
Message-ID: <hsJNf.21047$d9.2315@read2.cgocable.net>
Source record: 63884

Steve Nosko wrote:

> I don't understand being "on the same level" AND being "20 feet below".

Yes confusing, but I am sure there are intense lobes to look out for.

1924. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 22:23:07 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <t9re021und7epourc9isfuhovku8vt774u@4ax.com>
Source record: 63885

On Thu, 2 Mar 2006 10:56:15 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Action of a common ground plane is different. When its balanced radials >are perpendicular to its whip, radiation from its radials zeros out >leaving the whip to do all the radiation. Ideally, a whip mounted on a >vehicle or directly on the earth behaves the same. It is the whip which >radiates.

Boy Richard, you sure missed the boat on that one!

Roy is quite correct in stating that a vehicle's body behaves as one side of a dipole. A lopsided dipole to be sure, but one half the antenna just the same.

A number of years ago I did a study using NEC modeling comparing VHF mobile whips (1/4, 1/2 and 5/8-wavelength) mounted on different vehicles. I created wire frame vehicles models for a full and mid-size passenger cars, a small pickup truck and an SUV. The results for the same antenna mounted top-dead-center on the different vehicles was quite noticeable sometimes substantial.

An article I wrote on the subject can be viewed at:
http://k6mhe.com/files/mobile_vhf_ant.pdf

73,
Danny, k6MHE

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1925. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-02 22:46:19 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <jKmdnYZ3VvEn6JrZnZ2dneKdnZydnZ2d@comcast.com>
Source record: 63886

Quite interesting reading. Have you received peer comments?

Dan Richardson wrote:

> On Thu, 2 Mar 2006 10:56:15 -0600, richardharrison@webtv.net (Richard
> Harrison) wrote:
>
>
>>Action of a common ground plane is different. When its balanced radials
>>are perpendicular to its whip, radiation from its radials zeros out
>>leaving the whip to do all the radiation. Ideally, a whip mounted on a
>>vehicle or directly on the earth behaves the same. It is the whip which
>>radiates.
>
>
> Boy Richard, you sure missed the boat on that one!
>
> Roy is quite correct in stating that a vehicle's body behaves as one
> side of a dipole. A lopsided dipole to be sure, but one half the
> antenna just the same.
>
> A number of years ago I did a study using NEC modeling comparing VHF
> mobile whips (1/4, 1/2 and 5/8-wavelength) mounted on different
> vehicles. I created wire frame vehicles models for a full and mid-size
> passenger cars, a small pickup truck and an SUV. The results for the
> same antenna mounted top-dead-center on the different vehicles was
> quite noticeable sometimes substantial.
>
> An article I wrote on the subject can be viewed at:
> http://k6mhe.com/files/mobile_vhf_ant.pdf
>
> 73,
> Danny, k6MHE
>
>
>
>
>
>
>
>
> email: k6mhe<at>arrl<dot>net
> http://www.k6mhe.com/

1926. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 00:08:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eOLNf.62289$PL5.32727@newssvr11.news.prodigy.com>
Source record: 63887

Roy Lewallen wrote:
> A ground plane is a poor model of how currents flow along a car body.

If the car body was 1/2WL in the air, would the antenna
be more efficient?
--
73, Cecil http://www.qsl.net/w5dxp

1927. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 00:12:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eSLNf.62291$PL5.15518@newssvr11.news.prodigy.com>
Source record: 63888

Dan Richardson wrote:
> Roy is quite correct in stating that a vehicle's body behaves as one
> side of a dipole. A lopsided dipole to be sure, but one half the
> antenna just the same.

Seems the truth might lie somewhere in between. If the ground
plane of a vertical antenna is near the ground, there are
losses. If the ground plane of a vertical antenna is located
1/2WL above ground, the losses are a lot less. I'll bet that
if the vehicle were located 1/2WL in the air, the efficiency
would increase.
--
73, Cecil http://www.qsl.net/w5dxp

1928. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 00:35:15 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <0YGdnc2vqPncEprZnZ2dnUVZ_t-dnZ2d@comcast.com>
Source record: 63889

Cecil Moore wrote:
> Dan Richardson wrote:
>
>> Roy is quite correct in stating that a vehicle's body behaves as one
>> side of a dipole. A lopsided dipole to be sure, but one half the
>> antenna just the same.
>
>
> Seems the truth might lie somewhere in between. If the ground
> plane of a vertical antenna is near the ground, there are
> losses. If the ground plane of a vertical antenna is located
> 1/2WL above ground, the losses are a lot less. I'll bet that
> if the vehicle were located 1/2WL in the air, the efficiency
> would increase.

Kind of tough though going under power lines, bridges and overpasses :-)

1929. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 01:28:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <GYMNf.17505$rL5.13777@newssvr27.news.prodigy.net>
Source record: 63890

Amos Keag wrote:

> Cecil Moore wrote:
>> I'll bet that
>> if the vehicle were located 1/2WL in the air, the efficiency
>> would increase.
>
> Kind of tough though going under power lines, bridges and overpasses :-)

What if the vehicle is a helicopter? :-)
--
73, Cecil http://www.qsl.net/w5dxp

1930. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 01:52:08 UTC
From: Dan Richardson <k6mhe@mailinator.com>
Message-ID: <n38f02hi19cfqrpt95oou3lqaee09i5jhs@4ax.com>
Source record: 63891

On Thu, 02 Mar 2006 17:46:19 -0500, Amos Keag <A.K01@comcast.net>
wrote:

>Quite interesting reading. Have you received peer comments?

Naw.

However, those nec models are available at my web site and you can run
you own analysis if you like.

Danny

email: k6mhe<at>arrl<dot>net
http://www.k6mhe.com/

1931. New program CONNECT

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 02:03:09 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <du884tjmq1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63892

There have been recent discussions about the interchangeability of coaxial plugs and sockets, their dimensions and their impedances. But, as usual, the magnitude of the electrical effects is never mentioned. Without numbers nobody knows what they are talking about.

A coaxial connector is a very short length of transmission line but at UHF and microwave frequencies it is an appreciable fraction of a wavelength. When 1/4-wavelength long it has the property of transforming a mismatched termination to another value. When 1/2-wavelength long the input impedance repeats the value of the termination. The SWR on an adjacent line is a function of the input impedance.

What is the effect of using a 75-ohm coaxial connector in a 50-ohm system?

What is the effect of using a length of transmission line of 50-ohms nominal impedance when it is actually 53 ohms?

With mixed values of line Zo at what high frequency does the SWR and reflection loss become excessive?

Program CONNECT.exe calculates the effect of inserting a length of line in a system of different Zo. Differences can be large or small. Line length can be physically very short.

For a given frequency, mismatched Zo's and a velocity factor, input impedance, SWR, reflection coefficient and reflection loss are calculated. (Reflection loss is sometime known as mismatch loss).

The program is worded in terms of a connector mismatch but has other applications.

Input data can be varied in small increments from the keyboard while observing the effects on calculated values. Download CONNECT from website below. It has entertainment, educationaal and practical value. Amuse yourselves!

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

1932. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 03:35:30 UTC
From: richardharrison@webtv.net
Message-ID: <4239-4407B982-64@storefull-3253.bay.webtv.net>
Source record: 63893

Danny K6MHE wrote:
"Boy Richard you sure missed on that one!"

A broadcast tower over a perfect ground system is the source of radiated energy even though its image in the ground system produces a pattern which behaves as if there were a dipole, the lower half of which is buried.

The earth is not radiating. It is conducting. The tower above the earth is the source of radiation.

Every ground radial in the broadcast system (usually all 120 of them), has a twin running in the opposite direction. All radials are tied together at the base of the tower. So the current in the radials all starts out in the same phase and stays roughly in the same phase as it progresses outward. It declines in magnitude away from the feedpoint. That`s the reason ground radials don`t need to be unlimited in length. You don`t need radials after the current plays out. As current travels in opposite directions in the groind radials. the fields they prodoce add to zero.

The two halves of a dipole are fed with opposite polarities at their feedpoint. this puts the two halves running in opposite directions in-phase. Their fields thus reinforce.

A 1/4-wave ground plane in free space has the same power gain as a center-fed 1/2-wave dipole.

The matched power radiated by either ground plane or dipole is the same, but the resistance at the feedpoint of the ground plane is only 50% that of the dipole. Radiation resistance is defined as the resistance at the high current point of the antenna unless otherwise specified. Radiated power is (I) squared times the radiation resistance.

Danny did not specify where he thought I erred in my previous posting. I said that a whip mounted on a vehicle is not exactly like a dipole. I meant that the whip did most of the radiating because it carried a concentration of current in the same direction while in the car body the current is dispersed in various directions, some of which canncel in their effects.

I still insist that is the case.

Best regards, Richard Harrison, KB5WZI

1933. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 05:39:42 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <yEQNf.10717$Cp4.4325@edtnps90>
Source record: 63895

"dansawyeror" <dansawyeror@comcast.net> wrote in message
news:440707DD.1030601@comcast.net...
> Frank,
>
> A 'target' coil is 300mm x 300mm of 5/16 copper tubing. It is about 50
> feet of tubing, a .5 pitch, and should be close to 75 uH. This should be
> close. From there simulation should show the best performance between
> varying the coils.
>
> Thanks - Dan

Having trouble producing a good model Dan. NEC 2 indicates Qs which are >5000, but no warnings or errors. I can run it in NEC 4.1, single, and double precision, but I get over 400 warnings in the NEC output file; such as:

SEGCHK: WARNING - SEGMENTS 1 AND 271 CROSS AT A MIDPOINT WITH SEPARATION LESS THAN THE SUM OF THEIR RADII

SEGCHK: WARNING - THE CENTER OF SEGMENT 1 IS WITHIN THE VOLUME OF SEGMENT 271

These warnings are particularly strange since, for example, absolute segments 1 and 271 are almost 12" apart in the model. Will see what I can do to correct the error.

73,

Frank

The code I am using is as follows:

```
CM Inductor Q Calculation
CE
GH 1 300 1 12 6 6 6 6 0.3125
GW 2 5 6 0 12 0 0 12 0.3125
GW 3 10 0 0 12 0 0 0 0.3125
GW 4 5 0 0 0 6 0 0 0.3125
GS 0 0 0.025400
GE 0
EX 0 3 5 00 1 0
FR 0 5 0 0 3.7 0.02
LD 5 1 1 320 5.7001E7
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

1934. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 05:44:26 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <4407d7ba$1_1@newsfeed.slurp.net>
Source record: 63896

ORIGINAL MESSAGE:

Dan Richardson wrote:

> That may have some validity in the VHF and higher ranges, but on HF -
> particularly on 80 meters - a car body's size is a small fraction of a
> wavelength (as is the whip portion). Consequently the vehicle body
> acts like the one half of a dipole antenna.

~~~~~~
Q. How can a car body which is a "small fraction" of a wavelength act
like one half of a dipole?

A. It can't.

Q. Well, what does it do then?

A. It acts like a short piece of wire leading from the bottom of the
whip to the actual ground plane, namely the earth itself.

Q. Does that help any?

A. Probably a little, but remember the piece of wire (the car body) is
only a few feet long. Not very much on 80 meters.

Q. Thanks, I get it now.

A. You're welcome.

73, Bill W6WRT
~~~~~~

1935. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 06:24:00 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <120fo85epbaj24d@corp.supernews.com>
Source record: 63897

Bill Turner wrote:
> ORIGINAL MESSAGE:
>
> Dan Richardson wrote:
>
>
>>That may have some validity in the VHF and higher ranges, but on HF -
>>particularly on 80 meters - a car body's size is a small fraction of a
>>wavelength (as is the whip portion). Consequently the vehicle body
>>acts like the one half of a dipole antenna.
>
>
>
> ~~~~~~
> Q. How can a car body which is a "small fraction" of a wavelength act
> like one half of a dipole?
>
> A. It can't.
>
> Q. Well, what does it do then?
>
> A. It acts like a short piece of wire leading from the bottom of the
> whip to the actual ground plane, namely the earth itself.
>
> Q. Does that help any?
>
> A. Probably a little, but remember the piece of wire (the car body) is
> only a few feet long. Not very much on 80 meters.
>
> Q. Thanks, I get it now.
>
> A. You're welcome.
>
> 73, Bill W6WRT
Actually it is acting as one half of a dipole. It is just a non-resonant
half of a dipole. Remember "di" means two.

Dave WD9BDZ

1936. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 08:11:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120fuhhaaj786dc@corp.supernews.com>
Source record: 63898

Frank wrote:
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:440707DD.1030601@comcast.net...
>> Frank,
>>
>> A 'target' coil is 300mm x 300mm of 5/16 copper tubing. It is about 50
>> feet of tubing, a .5 pitch, and should be close to 75 uH. This should be
>> close. From there simulation should show the best performance between
>> varying the coils.
>>
>> Thanks - Dan
>
> Having trouble producing a good model Dan. NEC 2 indicates Qs which are
> >5000, but no warnings or errors. I can run it in NEC 4.1, single, and
> double precision, but I get over 400 warnings in the NEC output file; such
> as:
>
> SEGCHK: WARNING - SEGMENTS 1 AND 271 CROSS AT A MIDPOINT WITH SEPARATION
> LESS THAN THE SUM OF THEIR RADII
>
> SEGCHK: WARNING - THE CENTER OF SEGMENT 1 IS WITHIN THE VOLUME OF SEGMENT
> 271
>
> These warnings are particularly strange since, for example, absolute
> segments 1 and 271 are almost 12" apart in the model. Will see what I can
> do to correct the error.
>
> 73,
>
> Frank
>
> The code I am using is as follows:
>
> CM Inductor Q Calculation
> CE
> GH 1 300 1 12 6 6 6 6 0.3125
> GW 2 5 6 0 12 0 0 12 0.3125
> GW 3 10 0 0 12 0 0 0 0.3125
> GW 4 5 0 0 0 6 0 0 0.3125
> GS 0 0 0.025400
> GE 0
> EX 0 3 5 00 1 0
> FR 0 5 0 0 3.7 0.02
> LD 5 1 1 320 5.7001E7

```
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
```

NEC-2 and NEC-4 have different formats for the GH 'card'. This is the NEC-2 format, which will be interpreted differently by NEC-4. See your NEC-4 documentation for the correct NEC-4 format.

Roy Lewallen, W7EL

1937. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [2/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 08:41:15 UTC
From: Big Rich Soprano <BucSoprano@gmail.com>
Message-ID: <j60g02tfv0an71gaspk5k30t2i9vgbitlt@4ax.com>
Source record: 63899
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

This scr is a "Backdoor Server Program" according to AntiVir!

1938. Re: TEEN SISTER WITH DILDO XXX 7396 [2/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 08:41:26 UTC
From: Big Rich Soprano <BucSoprano@gmail.com>
Message-ID: <h90g02lfvkmn7a1li38hctst0913l9l0h0@4ax.com>
Source record: 63900
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

This scr is a "Backdoor Server Program" according to AntiVir!

1939. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 10:07:35 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120g5ba3toc9oc5@corp.supernews.com>
Source record: 63901

I'm afraid people are getting too hung up by trying to squeeze everything into various pigeon holes like "dipole" and "ground". You'll have to think beyond those narrow and poorly defined and understood categories and look at the basics of antenna operation in order to understand what's happening.

The field radiated from a conductor is determined by two things: the amount of current on it, and the length of the path the current takes. Theorists have known this for well over a century. The most sophisticated antenna analysis programs break the current paths into very short pieces ("segments"), calculate the current on each piece, and then calculate the resulting field from the product of the current and the segment length. Fields from various parts of the conductors can cancel or reinforce to any degree. (Mathematically, they add vectorally.)

If you don't or can't believe this, you needn't bother continuing.

For those still reading, let's imagine a 16 foot vertical wire with a tiny 3.5 MHz signal generator at the center. This is known in textbooks as a "dipole", but how things behave aren't dictated by what we call them, so feel free to insist it's a "seagull", "pizza", "xfppftm", or whatever makes you comfortable. The signal generator has two terminals, and any generator must have equal currents in and out of its two terminals. If you don't or can't believe that, brush up on Kirchoff's current law. If that doesn't do it, there's no need to continue further.

Let's suppose the generator is producing one amp RMS of RF current. If, say, 0.2 amp is flowing upward out of the top terminal at a given instant, 0.2 amp is flowing upward into the bottom terminal at the same instant. By inspection, one amp RMS is flowing upward in the vertical wire immediately above and below the generator. By a number of techniques, we can show that the current decreases nearly linearly from the center to the ends. That is, four feet from the center, either above or below the source, the current is 1/2 amp. At the antenna tips, the current is zero, which we should expect: there's nowhere for it to go.

It should be obvious that the wire above the source is radiating the same field strength as the wire below the source -- for each little piece of the wire above the source there's a piece below the source carrying exactly the same current. And as it turns out, the fields from all parts of both wires add completely in phase directly broadside to the wire, and only partially in phase in other directions. So at least directly broadside, we can say that the contribution from each wire is equal and proportional to its total field strength.

Ok, now let's make one of the wires "ground" and the other a "whip", because we like to do that, right? Let's call the top wire a "whip", and bottom load it. We add an inductor (very small, physically, to avoid adding another dimension to this analysis) between the signal generator's top terminal and its connection with the upper wire. We can make the inductor the proper value to make the upper wire/inductor self resonant if it were grounded, or we can make the inductor about twice as large to make the whole dipole resonant. It doesn't matter. Now let's see what happened to the radiation from the "whip" and "ground" wires.

There's no change whatsoever! The currents are exactly the same as they were before, on both wires. They still taper from the center to the tips as before. They both radiate equally. All we've done is change the impedance seen by the generator. If you don't believe this, perhaps you can explain why they won't.

Next, let's replace the lower wire with a cylinder like a tank, say 10 feet in diameter but still 8 feet high. What happens then? Surely it must now be "ground", and "ground" doesn't radiate, does it?

Well, it does radiate. The one amp flowing into the bottom generator terminal spreads out radially over the top of the cylinder. Although the current density decreases as we move out from the center, the total current also decreases. If only the cylinder top was present and the rest of the cylinder missing, the current would drop to nearly zero at the edge. But because of the presence of the rest of the cylinder, the current at the edge drops to about half the value at the center. The half which remains flows down the cylinder sides. This would result in the field from the cylinder being about half the field from the "whip" if the current decreased to zero at the bottom of the cylinder as it does at the top of the whip. But the current along the sides of the cylinder doesn't drop to zero at the bottom of the walls because it can flow onto the bottom of the cylinder. The average current on the whip is 0.5 amp, and on the cylinder (from a model) about 0.35 amp, so the cylinder's field is about 3 dB less than that of the "whip". Not quite what most of envision when we think of a "ground".

If we top load the whip with a 10 foot diameter top hat, its average current increases to about 0.9 amp. But its presence also reduces the amount of current drop from the center to the edge of the cylinder top due to mutual coupling. The end result is larger current along the cylinder sides and very nearly the same field strength ratio between the "whip" and cylinder.

So far this analysis has taken place in free space. What happens if we put the cylinder bottom just above the ground, say six inches? Now, surely, the cylinder is "ground"! But the current still flows down the sides and radiates just like the old original vertical lower wire did. And putting the bottom close to ground increases the current along the sides! The coupling between the cylinder bottom and ground acts somewhat like a top hat does to a whip, and increases the average current. Instead of 0.35 amp, it increases to about 0.42. Now the cylinder's field is only about 1.5 dB less than that of the "whip".

I hope this has encouraged at least a few people to think a little
before declaring every conductor to be either an "antenna" or a "ground
plane" and assuming that by doing so they'll somehow cause it to behave
in some predetermined and only vaguely understood fashion.

Roy Lewallen, W7EL

Bill Turner wrote:
> ORIGINAL MESSAGE:
>
> Dan Richardson wrote:
>
>> That may have some validity in the VHF and higher ranges, but on HF -
>> particularly on 80 meters - a car body's size is a small fraction of a
>> wavelength (as is the whip portion). Consequently the vehicle body
>> acts like the one half of a dipole antenna.
>
>
> ~~~~~~
> Q. How can a car body which is a "small fraction" of a wavelength act
> like one half of a dipole?
>
> A. It can't.
>
> Q. Well, what does it do then?
>
> A. It acts like a short piece of wire leading from the bottom of the
> whip to the actual ground plane, namely the earth itself.
>
> Q. Does that help any?
>
> A. Probably a little, but remember the piece of wire (the car body) is
> only a few feet long. Not very much on 80 meters.
>
> Q. Thanks, I get it now.
>
> A. You're welcome.
>
> 73, Bill W6WRT

1940. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 10:10:31 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44081617_4@newsfeed.slurp.net>
Source record: 63902

David G. Nagel wrote:

> Actually it is acting as one half of a dipole. It is just a
> non-resonant half of a dipole. Remember "di" means two.
>
> Dave WD9BDZ

~~~~~~

In a strict sense you are correct, but in the context here where one
half of the dipole is an eight-foot whip and the other half is four
feet of car body, we don't have much of an 80 meter antenna without the
coupling from car body to earth ground.

Bill, W6WRT
~~~~~~

1941. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 10:28:23 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44081a47_1@newsfeed.slurp.net>
Source record: 63904

Roy Lewallen wrote:

> I hope this has encouraged at least a few people to think a little
> before declaring every conductor to be either an "antenna" or a
> "ground plane" and assuming that by doing so they'll somehow cause it
> to behave in some predetermined and only vaguely understood fashion.

~~~~~~

A very good explanation, thank you Roy.

However... in your example of the giant tin can in free space, the top of the tin can is acting like a ground plane, the side is acting like an antenna and the bottom is again acting like a ground plane, just as we have been saying. When this model is transferred to a car body, the bottom of the car, in addition to the above, is also acting like one plate of a capacitor coupling the signal to the earth below it, commonly known as "ground". If someone disagrees with this I believe we have a problem with semantics more than physics.

In other words, we are arguing over nothing.

Bill, W6WRT
~~~~~~

1942. Re: 80m mobile antenna question & "Skeleton Sleeve Antenna"

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 10:28:54 UTC
From: Harbin <harbinjr@adelphia.net>
Message-ID: <vOednfzS7KnEh5XZnZ2dnUVZ_tKdnZ2d@adelphia.com>
Source record: 63903

Howdy Dan:
Thanks for the info on "Mobile Vhf Ant.pdf", very interesting stuff.
I was checking out the rest of your site, and found an interesting pdf on the "Skeleton Sleeve Antenna",
and it's similarity of the J-pole, and you state that the distance from the 1/4 wave elements, and the 1/2 wave
element is not that critical. I have heard this before about the elements on the J-pole too, but what I don't understand
is why this dimension is not critical, it is an electrical path that should be subtracted from both elements, right?
Is it correct to shorten both elements by 1/2 of the dimension between the elements?

--
SeeYaa:) Harbin Osteen KG6URO

!sdohtem noitpyrcne devorppa-tnemnrevog troppus I

"Dan Richardson" <k6mhe@mailinator.com> wrote in message
news:t9re021und7epourc9isfuhovku8vt774u@4ax.com...
> On Thu, 2 Mar 2006 10:56:15 -0600, richardharrison@webtv.net (Richard
> Harrison) wrote:
>
>>Action of a common ground plane is different. When its balanced radials
>>are perpendicular to its whip, radiation from its radials zeros out
>>leaving the whip to do all the radiation. Ideally, a whip mounted on a
>>vehicle or directly on the earth behaves the same. It is the whip which
>>radiates.
>
> Boy Richard, you sure missed the boat on that one!
>
> Roy is quite correct in stating that a vehicle's body behaves as one
> side of a dipole. A lopsided dipole to be sure, but one half the
> antenna just the same.
>
> A number of years ago I did a study using NEC modeling comparing VHF
> mobile whips (1/4, 1/2 and 5/8-wavelength) mounted on different
> vehicles. I created wire frame vehicles models for a full and mid-size
> passenger cars, a small pickup truck and an SUV. The results for the
> same antenna mounted top-dead-center on the different vehicles was
> quite noticeable sometimes substantial.
>
> An article I wrote on the subject can be viewed at:
> http://k6mhe.com/files/mobile_vhf_ant.pdf
>
> 73,

> Danny, k6MHE
>
>
>
>
>
>
>
> email: k6mhe<at>arrl<dot>net
> http://www.k6mhe.com/

1943. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 12:05:03 UTC
From: Scott <acepilot@bloomer.net>
Message-ID: <kbCdnXv-ha5yrZXZRVn-uA@bright.net>
Source record: 63905

If I remember correctly, the higher the coil goes, doesn't its value
have to increase as well? If so, might the coil dimensions become a bit
too big to handle?

Scott
N0EDV

Jerry wrote:

> "Cecil Moore" <mycall@arrl.net> wrote in message
> news:xKlNf.36179$Jd.27783@newssvr25.news.prodigy.net...
>
>>nm5k@wt.net wrote:
>>
>>>What we found at the CA shootouts is that when the bottom
>>>section runs closely parallel to the vehicle body, as it
>>>does with a trailer hitch mount on an SUV, the field
>>>strength is much lower than if that bottom section is
>>>in the clear, e.g. mounted on the roof of the SUV.....
>>>
>>>I often wonder about this myself, but never get around to trying a
>>>bumper mount. In the past, I've always preferred to have the lower
>>>mast and coil as clear of the body as possible. But on the other
>>>hand, if I mounted the base on the bumper, I could have a longer
>>>mast below the coil.
>>
>>What worked like a charm for me was using the trailer hitch
>>hole on my GMC pickup and removing the tailgate. I looked
>>for a fiberglass aftermarket tailgate but couldn't find one.
>>--
>>73, Cecil http://www.qsl.net/w5dxp
>
>
> With that in mind, I have a friend who has a Ford Exploder--I mean, EXPLORER
> :) --- with his DK3 mounted on a homebrew mount level with the rear bumper.
> The bad part of it (IMHO) is the loading coil is level with the body about
> where the rear window is and about 8 inches from the body. I mentioned to
> him that it would be better to get the coil up in the clear above the truck,
> but he is says he can't get in his carport. Well, what about this: move the
> coil UP to clear the body and use a shorter whip? IOW, faced with the
> lesser of two evils, which would be better. Left as is with longer whip and
> putting up with the loss caused by proximity to body metal, or coil clearing
> the top of the truck and a shorter whip--even it it has to be 5 feet instead
> of 6 1/2? I voted for the higher coil and shorter whip. What say ye? :)
>

>
> 73
>
> Jerry
> K4KWH
>
>

1944. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 12:17:21 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <NMGdnYEUkvRSrpXZnZ2dnUVZ_tSdnZ2d@comcast.com>
Source record: 63906

Cecil Moore wrote:

> Amos Keag wrote:
>
>> Cecil Moore wrote:
>>
>>> I'll bet that
>>> if the vehicle were located 1/2WL in the air, the efficiency
>>> would increase.
>>
>>
>> Kind of tough though going under power lines, bridges and overpasses :-)
>
>
> What if the vehicle is a helicopter? :-)

Ahah!! No we have to consider the whop whop effect!! :-)

1945. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 13:02:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <18XNf.43429$H71.26540@newssvr13.news.prodigy.com>
Source record: 63907

Scott wrote:
> If I remember correctly, the higher the coil goes, doesn't its value
> have to increase as well? If so, might the coil dimensions become a bit
> too big to handle?

The bigger the top hat, the smaller the required reactance.
--
73, Cecil http://www.qsl.net/w5dxp

1946. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 15:09:34 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <120gn1hpd81lmaa@corp.supernews.com>
Source record: 63908

Bill Turner wrote:

> David G. Nagel wrote:
>
>
>>Actually it is acting as one half of a dipole. It is just a
>>non-resonant half of a dipole. Remember "di" means two.
>>
>>Dave WD9BDZ
>
>
> ~~~~~~
>
> In a strict sense you are correct, but in the context here where one
> half of the dipole is an eight-foot whip and the other half is four
> feet of car body, we don't have much of an 80 meter antenna without the
> coupling from car body to earth ground.
>
> Bill, W6WRT

No argument here Bill. The point I guess I was trying to make is that a
dipole antenna system is two elements no matter what you make them of.
I use a Hi Sierra screwdriver antenna on my Honda Element. Even though
is is an impressive construct I don't harbor any illusions that it is an
efficient radiator. The body of the car is longer than the length of the
screwdriver, coil and whip. I have also used an Outbacker. Some say that
is a good antenna for it type, I have not had that good of a result with
it. Of course I am using my mobile for Civil Air Patrol and the
Outbacker does not fit that frequency very well on the precut tuning jacks.
I have found this thread to be interesting but I think that is had
passed that point.
I do not consider myself to be anything other than an interested amateur
and always consider your comments with great interest. Thank you for
your personal comments.

Dave WD9BDZ

1947. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 15:36:51 UTC
From: mcalhoun@ksu.edu
Message-ID: <du9nqj$nii@unix1.cc.ksu.edu>
Source record: 63909

Roy Lewallen, W7EL, typed:
>I'm not sure why, but most amateurs don't seem to realize that the whip
>....[snip]....
>The best arrangement, as others have pointed out, is to mount the
>antenna right at the center of the top of the car. This makes the car
>....[snip]....

Although my "evidence" is purely anecdotal, I've sure had good success
on 80 meters with a pair of hamsticks mounted horizontally (one pointing
forward and one backwards) about two feet above my picup cab (which has
a metal "topper" behind the cab at essentially cab-top height). I've
always assumed it was acting much like an NVIS dipole....

--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

1948. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 15:38:40 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <4qZNf.10901$M52.10134@edtnps89>
Source record: 63910

> NEC-2 and NEC-4 have different formats for the GH 'card'. This is the
> NEC-2 format, which will be interpreted differently by NEC-4. See your
> NEC-4 documentation for the correct NEC-4 format.
>
> Roy Lewallen, W7EL

Thanks Roy, now you mention it I do remember that there are some differences. Should have checked with my manual before running it instead of just cutting and pasting NEC 2 code. Made the appropriate correction and it is now working with a reasonable correlation with NEC 2. Heck, now I just noticed I had entered the wire diameter instead of its radius!

Frank, VE6CB

1949. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 17:02:32 UTC
From: richardharrison@webtv.net
Message-ID: <17919-440876A8-95@storefull-3252.bay.webtv.net>
Source record: 63911

Cecil, W5DXP wrote:
"The only way to improve on that on 75m would be to mount a piece of sheet metal on fiberglas poles connected at ythe ends of both bumpers."

Kraus gives some support to that idea. Cecil has the 3rd edition of "Antennas" In that edition, there is a "Disc antenna" on page 720 with some similarity to cecil`s suggestion.

The "flush-disk" antenna, (d) in Figure 21-11 is said to be comparable to a 1/4-wave vertical in performance, but has no projection. It could be covered with a dielectric sheet, make no noise in the wind, and break out no fluorescent tubes in parking garages. But, at 75m, the 0.3 lambda dia. depression to contain it would measure 22.5 meters. That woud require a vehicle that was very large indeed. At VHF and UHF it could be very practical.

Best regards, Richard Harrison, KB5WZI

1950. Heavy Duty Antenna Wire - 500ft #8 19-Strand - - NEW

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 18:27:08 UTC
From: erfurth@gmail.com
Message-ID: <1141410428.882657.113430@v46g2000cwv.googlegroups.com>
Source record: 63913

.
I have listed a NEW 500ft spool of heavy duty antenna with on eBay.
This is #8 19-strand wire.

Click on this link to see the pictures and information.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=9110397244&rd=1&sspagename=STRK%3AMESE%3AIT&rd=1

73s,

Bill

1951. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 18:56:38 UTC
From: Me <Me@shadow.orgs>
Message-ID: <Me-A2C9BA.09590403032006@netnews.worldnet.att.net>
Source record: 63914

In article <6qJNf.25805$8d1.12957@read1.cgocable.net>,
Jules <jhgskldhgskldhgskcvbyren@dhgkjhdytrn.com> wrote:

> I think if it is too strong it will affect your eyes first, ears then
> nerves/brain last. There are lots of safety precautions for wx radar on
> aircraft and they are generally are under 10kw for small planes, x band
> radar. Large jets, c band. Then there are fighter aircraft whose
> targeting radar has been know to kill small animals around the runways.
> But those are out of favour now, low power is in.
>
>
>
> Thierry wrote:
> > Hi,
> >
> > I received this message from a colleague but I cannot answer him. I d
> > not know these systems.
> > Could you help me ?
> >
> > My company has installed a Radar Tower for Port survaillence. The tower
> > is about 50 meter height on top of the of a 3 stories building roof and
> > my office building just below the tower on the same level, 20 meter away
> > from the tower. At the same time, the surrounding is my working area (
> > Jetty Terminal for ships loading and unloading activities). I can say
> > that I'll be around that area 12 hours a day for another 20 years.
> >
> > My question:
> >
> > Is it safe to work in that area????
> >
> > Thanks in advance
> > Thierry
> > http://www.astrosurf.org/lombry
> >
> >
>

The basic facts are: Any commercial civilian Xband Radar will NOT even
come close to approching FCC RF Radiation Biologic Health Maximum
Radiation Power Densities even if you are right next to the antenna.
You are more likely to get hurt by the rotating antenna hiting you
in the head than from the RF Energy coming out of the antenna.
Wx Radar on Commecrcial Aircraft usually are left in Standby Mode
untill the aircraft has taxied onto the tarmac beside the active runway.
Eve if they were activated, most xBand versions still don't have the

Power Density one foot in front of the antenna to approch the FCC RF
Radiation Biologic Health Maximum.
Military Radars are a totally different beast altogether, and there are
very strict operational rules for when they can be operated inside US
Water and Airspace.

Me

1952. Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 19:07:04 UTC
From: jawod <jawod@fuse.net>
Message-ID: <54f81$440893e2$42a1bfc2$25389@FUSE.NET>
Source record: 63915

I'm getting ready to mount a dipole between two trees in my backyard.
Both are large sycamores and I plan to have the dipole about 60 feet up
(max).

In an ARRL publication, there is a description of using a bow and arrow
to get over the branch desired.

This is the method I guess I'll try (can't climb these trees).
Once I have the nylon fishing line over, I'll need to hoist up a nylon
rope attached to a pulley attached to the antenna itself (I mean, of
course, the support line attached to insulator).

I can't figure a way to hoist all this up without, say, 120 feet of
nylon rope in an inverted U plus the weighted support line attached to
the antenna. Yes, I can use a slip knot but I still end up having 60
feet of rope draped from the tree. Should I find a way to cut the nylon
rope near the branch? Just tie up the hanging rope?

It seems necessary to "waste" as much as 60 feet of rope in either side.
If I support the center insulator, then double that.

Is there a better way?

John

PS, Sorry, I couldn't find a way to insert something with imaginary
numbers (hi)

1953. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [2/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 19:23:31 UTC
From: Ron H <rnharsh@attbi.com>
Message-ID: <WI0Of.29940$5r5.20323@newsfe17.lga>
Source record: 63916
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

Now I am not an IT professional mind you but I used test files with the scr extension as "SCRipt" files. The operating system likes to grab them and just do as the text inside instructs it. I use OE and it would reject such files if I set it up to but being a curious fellow, I like to see what I am missing.

K3PID

"Big Rich Soprano" <BucSoprano@gmail.com> wrote in message news:j60g02tfv0an71gaspk5k30t2i9vgbitlt@4ax.com...
> This scr is a "Backdoor Server Program" according to AntiVir!

1954. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 19:34:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120h6hb13r7b32b@corp.supernews.com>
Source record: 63917

Bill Turner wrote:
> Roy Lewallen wrote:
>
>> I hope this has encouraged at least a few people to think a little
>> before declaring every conductor to be either an "antenna" or a
>> "ground plane" and assuming that by doing so they'll somehow cause it
>> to behave in some predetermined and only vaguely understood fashion.
>
> ~~~~~~
>
> A very good explanation, thank you Roy.
>
> However... in your example of the giant tin can in free space, the top
> of the tin can is acting like a ground plane, the side is acting like
> an antenna and the bottom is again acting like a ground plane, just as
> we have been saying. When this model is transferred to a car body, the
> bottom of the car, in addition to the above, is also acting like one
> plate of a capacitor coupling the signal to the earth below it,
> commonly known as "ground". If someone disagrees with this I believe we
> have a problem with semantics more than physics.
>
> In other words, we are arguing over nothing.
>
> Bill, W6WRT

I interpreted your comments and those by some others as claiming that radiation from the car is insignificant, and that it therefore isn't effectively part of the antenna. I attempted to show that this isn't generally true. I also showed that coupling to the ground actually increases radiation from the car. So either I've convinced you by my illustration, or I misinterpreted your earlier remarks.

Roy Lewallen, W7EL

1955. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 20:20:37 UTC
From: tclay@qmc.ph.msstate.edu
Message-ID: <87u0afnuui.fsf@qmc.ph.msstate.edu>
Source record: 63918

>It seems necessary to "waste" as much as 60 feet of rope in either
>side. If I support the center insulator, then double that.
>
>Is there a better way?

I'm not sure what the problem is, yes, it takes a bunch of rope if
you can't climb the tree.

I usually don't bother with pulleys as I prefer to get the antenna
up as high as possible. You will lose 15-20 feet of height (or more)
using a pulley compared to not.

Tor
N4OGW

1956. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 20:58:57 UTC
From: Dan Richardson <k6mhe>
Message-ID: <p2bh02tdcvsd0hido5uimtc96egeg4a3gc@4ax.com>
Source record: 63894

On Thu, 2 Mar 2006 21:35:30 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Danny did not specify where he thought I erred in my previous posting. I >said that a whip mounted on a vehicle is not exactly like a dipole. I >meant that the whip did most of the radiating because it carried a >concentration of current in the same direction while in the car body the >current is dispersed in various directions, some of which canncel in >their effects.

That may have some validity in the VHF and higher ranges, but on HF - particularly on 80 meters - a car body's size is a small fraction of a wavelength (as is the whip portion). Consequently the vehicle body acts like the one half of a dipole antenna. Slightly lop-sided yes, but a dipole just the same - just as Roy stated.

Regards,
Danny

1957. Caronlina Windom characterisation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 20:59:01 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dtah025lldi6hjdk1asg4jcst8mo54oimq@4ax.com>
Source record: 63919

I am working with some guys on ambient noise measurement in a pre BPL scenario.

They are using FSM (http://www.vk1od.net/fsm/) to make field strength measurements using a known comms receiver and a Carolina Windom (CW).

We need to form a view on the CW antenna system losses (radiator, ground reflection, isolator, matching unit, feedline, ATU.

Has anyone built and calibrated NEC models for the CW, or have they measured reliably feedpoint impedance on the various bands.

This is not a troll, and I don't want to excite a war over the claimed performance of the CW, I am not interested in anecdotal evidence or QSO evidence as to whether they "work".

I see that there will be significant issues in modelling the "secret" components of the CW unless someone has worked out an RF equivalent circuit of those components (the isolator and matching unit).

Thanks...

Owen
--

1958. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 21:04:49 UTC
From: Jules <jhgskldhgskldhgskcvbyren@dhgkjhdytrn.com>
Message-ID: <Pb2Of.21106$d9.10221@read2.cgocable.net>
Source record: 63920

Me wrote:

> The basic facts are: Any commercial civilian Xband Radar will NOT even
> come close to approching FCC RF Radiation Biologic Health Maximum
> Radiation Power Densities even if you are right next to the antenna.
> You are more likely to get hurt by the rotating antenna hiting you
> in the head than from the RF Energy coming out of the antenna.
> Wx Radar on Commecrcial Aircraft usually are left in Standby Mode
> untill the aircraft has taxied onto the tarmac beside the active runway.
runway
> Eve if they were activated, most xBand versions still don't have the
> Power Density one foot in front of the antenna to approch the FCC RF
> Radiation Biologic Health Maximum.
> Military Radars are a totally different beast altogether, and there are
> very strict operational rules for when they can be operated inside US
> Water and Airspace.

On my plane the radar is 7.6 kw (xband). The manual says not to use it on the ground especially around people. Also they have been know to cause some sort of sparking on metal so fuel trucks are to be avoided. Shop people are cautioned to make sure it is not emitting if in stby mode, some do. The display will say STBY, the antenna not panning, but it is emitting. Go figure. Small airplanes have xband not because it is wimpy but because of antenna size constraints. These are 10 ro 12 inch diameter "flat dish" antennas. Lots of waveguide-like openings on it. Extreemly directional. And this is a small 6 seater plane.

Large weather radars, ground based are sband. Big antennas.

In the late 80's many radars dropped down to under 10 watts. Most under one watt. Mainly due to improved signal processing. Even on large jets with large dishes. With the lower power came more managable attenuation affects in rain too.

You do not want your head one foot away from my radar when it is on. And I wouln't let you try it, even if you asked.

1959. Re: Caronlina Windom characterisation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 21:15:19 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <HI2Of.11245$Cp4.4935@edtnps90>
Source record: 63921

"Owen Duffy" <owen@no.where> wrote in message
news:dtah025lldi6hjdk1asg4jcst8mo54oimq@4ax.com...
>
> I am working with some guys on ambient noise measurement in a pre BPL
> scenario.
>
> They are using FSM (http://www.vk1od.net/fsm/) to make field
> strength measurements using a known comms receiver and a Carolina
> Windom (CW).
>
> We need to form a view on the CW antenna system losses (radiator,
> ground reflection, isolator, matching unit, feedline, ATU.
>
> Has anyone built and calibrated NEC models for the CW, or have they
> measured reliably feedpoint impedance on the various bands.
>
> This is not a troll, and I don't want to excite a war over the claimed
> performance of the CW, I am not interested in anecdotal evidence or
> QSO evidence as to whether they "work".
>
> I see that there will be significant issues in modelling the "secret"
> components of the CW unless someone has worked out an RF equivalent
> circuit of those components (the isolator and matching unit).
>
> Thanks...
>
> Owen

Owen, I have done some tentative modelling of the CW; how valid the model is, I am not sure. I used the "TL" card for the actual coaxial feedline, and ran a single wire from the antenna feed point to one side of the TL source segment. The idea was to replicate the coaxial surface current. I don't think the balun (Isolator) will have any effect on the antenna performance. I may even have the code saved someplace if anybody is interested. Why would you not use a calibrated EMC monopole for HF?

Frank

1960. Re: Caronlina Windom characterisation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-03 21:49:23 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <6rdh02hso77p0mvmqj92rhnqr5dgv3hevb@4ax.com>
Source record: 63922

On Fri, 03 Mar 2006 21:15:19 GMT, "Frank's"
<frank599@nospam.telus.net> wrote:

>

>Owen, I have done some tentative modelling of the CW; how valid the model
>is, I am not sure. I used the "TL" card for the actual coaxial feedline,
>and ran a single wire from the antenna feed point to one side of the TL
>source segment. The idea was to replicate the coaxial surface current. I
>don't think the balun (Isolator) will have any effect on the antenna
>performance. I may even have the code saved someplace if anybody is
>interested. Why would you not use a calibrated EMC monopole for HF?

Thanks Frank. Some thoughts...

I think they call the thing at the top a matching unit, and it seems to be a 4:1 transformer, but I have no idea of its common mode impedance that is relevant to the model.

Similarly the common mode impedance of the lower unit (Isolator) is relevant to the model, and of course the treatment of the main feedline (routing, where it is earthed).

The loss in the vertical coax is probably relevant, and not adequately modelled in NEC.

The loss in the main feedline and ATU are also relevant, and can be calculated from the feedpoint Z.

If I were building a model, I would be thinking of the assymetric dipole with the generator at the "upper" feedpoint, a vertical wire to ground loaded where the matching unit and isolator are located, and loaded for an underground coax feed (as is the case in this installation).

But, the model will depend heavily on the common mode impedance of the two proprietary boxes. Unless someone has measured these, or calibrated a model, the model results will be of limited value.

Perhaps Roy will comment on the above.

Owen
--

1961. Repacement Motor for MFJ-1788

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 00:03:41 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <4408D962.6E87A02F@shaw.ca>
Source record: 63923

A chum of mine has a MFJ-1788 with a bad motor. Does anyone
know of a good replacement? Has anyone ever ordered one from MFJ?

Thanks in advance for any assistance.

Irv VE6BP

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

1962. Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 01:00:57 UTC
From: "sananda@hotmail.com" <sananda--@hotmail.com>
Message-ID: <1141434057.863204.9240@i39g2000cwa.googlegroups.com>
Source record: 63924
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

Concord Police Department Officer Ron Turner is a fucken dirty black
pig cop
he stoped me because i had 820lbs. in a 1 ton pu truck
First the cop called for chp portable scale to get the
wt of my truck he could not get one then he had me
go to the chp truck scale on the hwy to get the wt of
my truck no one was there then he had me go to moving co.
and had me drive on there scale to get wt of my truck with
me in it . the scale said i was under 6000lbs. but he gave
me a ticket for overloaded tire load range . he added the
gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
boxes was cardboard. just before he let me go he had me go
into the restroom at the moving co. and told me to strip with 2
back up cops 1 male cop and 1 girl cop. and then he let me
go after 8 hours. got to court i showed him how to do the
math on the tire load range and he walks up to the judge and
says ALL CHARGES DROPPED.

Ron tuner who is 300lb black dirty pig cop needs to go
hunting with dick cheney .

Toilets
Police employees in Concord, California, filed a $30 million
lawsuit against the Concord Police Department after they found
a hidden in the restroom.

1963. ftp 2m rig?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 01:43:43 UTC
From: ml <m@di.net>
Message-ID: <m-4ADBC0.20433703032006@news.verizon.net>
Source record: 63925

hi

I was wondering if anyone knew of any fairly current 2m or 2/440 rigs
that allow programming access to the memories via means OTHER THAN
'cloaning' method?

for example here are a few that i already know of
tm700 tmv7

i am not sure about the most current rigs seems the web sites of the
manuf don't really say

any help is appreciated

m

1964. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 01:46:07 UTC
From: Anonymous <anonymous@example.net>
Message-ID: <j8sh029qhrf4i0opvm8mmsobft4eosb1ev@4ax.com>
Source record: 63826
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

On 3 Mar 2006 17:00:57 -0800, "sananda@hotmail.com"
<sananda--@hotmail.com> wrote:

>Concord Police Department Officer Ron Turner is a fucken dirty black
>pig cop
>he stoped me because i had 820lbs. in a 1 ton pu truck
>First the cop called for chp portable scale to get the
>wt of my truck he could not get one then he had me
>go to the chp truck scale on the hwy to get the wt of
>my truck no one was there then he had me go to moving co.
>and had me drive on there scale to get wt of my truck with
>me in it . the scale said i was under 6000lbs. but he gave
>me a ticket for overloaded tire load range . he added the
>gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
>is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
>over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
>boxes was cardboard. just before he let me go he had me go
>into the restroom at the moving co. and told me to strip with 2
> back up cops 1 male cop and 1 girl cop. and then he let me
>go after 8 hours. got to court i showed him how to do the
>math on the tire load range and he walks up to the judge and
>says ALL CHARGES DROPPED.
>
>Ron tuner who is 300lb black dirty pig cop needs to go
>hunting with dick cheney .

Contact a lawyer. And then see a psychiatrist.

On second thought, see a psychiatrist and THEN contact a lawyer.

1965. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 02:14:07 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <VG6Of.34433$Ly6.14006@bignews5.bellsouth.net>
Source record: 63827

"jawod" <jawod@fuse.net> wrote in message
news:54f81$440893e2$42a1bfc2$25389@FUSE.NET...
> I'm getting ready to mount a dipole between two trees in my backyard.
> Both are large sycamores and I plan to have the dipole about 60 feet up
> (max).
>
> In an ARRL publication, there is a description of using a bow and arrow
> to get over the branch desired.
>
> This is the method I guess I'll try (can't climb these trees).
> Once I have the nylon fishing line over, I'll need to hoist up a nylon
> rope attached to a pulley attached to the antenna itself (I mean, of
> course, the support line attached to insulator).
>
> I can't figure a way to hoist all this up without, say, 120 feet of
> nylon rope in an inverted U plus the weighted support line attached to
> the antenna. Yes, I can use a slip knot but I still end up having 60
> feet of rope draped from the tree. Should I find a way to cut the nylon
> rope near the branch? Just tie up the hanging rope?
>
> It seems necessary to "waste" as much as 60 feet of rope in either side.
> If I support the center insulator, then double that.
>

Wasting 60 ft of line is cheaper than a cherry picker rental, or broken leg.
I will usually tie the rope off by putting a couple of large nails within
step-ladder distance from the ground - but higher than a kid can normally
reach. Then if you need to lower it again, it may be possible.

1966. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 02:58:04 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <gcidnc1hOra3n5TZnZ2dneKdnZydnZ2d@comcast.com>
Source record: 63828

"Owen Duffy" <owen@no.where> wrote in message
news:7h3202hofj05os221cd024hm2srjvjq160@4ax.com...
> On Sat, 25 Feb 2006 16:47:28 -0800, Roy Lewallen <w7el@eznec.com>
> wrote:
>
>
>>I don't know about type N connectors -- I don't think I've ever seen a
>>75 ohm version.
>
> The 75 ohm version N-type uses a reduced centre pin and I believe they
> are incompatible.
>
> Owen
> --
Problem I had was getting the center conductor of 50 Ohm coax to go into the hole at the back of the 75 Ohm pin. I think they mate OK, because the skinny part of the pin has the samo OD.

Tam/WB2TT

1967. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [1/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 03:02:32 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <120i0qb41ith58e@corp.supernews.com>
Source record: 63829
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

Ron H wrote:
> I certainly hope everyone in this list is smart enough to NEVER open a file
> with the .scr extension!
>
>
> Carry On!
> K3PID
> Ron H.
>
>
I don't mind my ignorance showing,...what is an .scr ext?

KF5DE

1968. Re: 75 And 50 Ohm Connectors In Same Listening Chain ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 03:09:15 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <m5adnRfZ_cBUmZTZnZ2dnUVZ_s6dnZ2d@comcast.com>
Source record: 63830

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:1201ul29sgamu6b@corp.supernews.com...
> Owen Duffy wrote:
>>
>> Beware of having 50 and 75 ohm versions of BNC and like around,
>> incorrect pairing risk damage to the female connector. Most 75 ohms
>> applications still use 50 ohm BNC connectors, even though 75 ohm
>> versions are available.
>
> I keep reading this, and it puzzles me. I have a number of RG-59 patch
> cables which have 75 ohm BNC connectors fitted (and others with 50 ohm
> connectors). As far as I can tell with a magnified inspection, the center
> conductor of the 75 ohm male BNC is the same diameter as it is in a
> standard 50 ohm BNC. The only apparent difference is that the dielectric
> around the inside of the outer mating area is much thinner in the 75 ohm
> connector, and the diameter of the 50 ohm center pin steps up as it enters
> the solid dielectric at the bottom while the 75 ohm center pin doesn't.

Since the pin of the male connector is wholly inserted into the socket, its
diameter should not matter. The OD of the *female* center conductor should
be different. Also, the OD of the back end of the male connector (the part
that does not insert) should be different. There were dimensions available
at the Tyco web site.

Tam/WB2TT

1969. Re: Caronlina Windom characterisation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 04:11:07 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <jo4i02dhmvci6lgq70052t5apcm5lgt6eh@4ax.com>
Source record: 63832

On Fri, 03 Mar 2006 20:59:01 GMT, Owen Duffy <owen@no.where> wrote:

>
>I am working with some guys on ambient noise measurement in a pre BPL
>scenario.
>
>They are using FSM (http://www.vk1od.net/fsm/) to make field
>strength measurements using a known comms receiver and a Carolina
>Windom (CW).
>
>We need to form a view on the CW antenna system losses (radiator,
>ground reflection, isolator, matching unit, feedline, ATU.
>
>Has anyone built and calibrated NEC models for the CW, or have they
>measured reliably feedpoint impedance on the various bands.
>
>This is not a troll, and I don't want to excite a war over the claimed
>performance of the CW, I am not interested in anecdotal evidence or
>QSO evidence as to whether they "work".
>
>I see that there will be significant issues in modelling the "secret"
>components of the CW unless someone has worked out an RF equivalent
>circuit of those components (the isolator and matching unit).
>
>Thanks...
>
>Owen

Their catalog shows modelled patterns. Might be some NEC models
available at the Radio Works web site.

bob
k5qwg

1970. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [1/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 04:28:29 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <NH8Of.6206$F56.949@newsread3.news.atl.earthlink.net>
Source record: 63833
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

"Butch Magee" <lynyrd@cableone.net> wrote in message
news:120i0qb41ith58e@corp.supernews.com...
> Ron H wrote:
> > I certainly hope everyone in this list is smart enough to NEVER open a
file
> > with the .scr extension!
> >
> >
> > Carry On!
> > K3PID
> > Ron H.
> >
> >
> I don't mind my ignorance showing,...what is an .scr ext?
>
> KF5DE

The .scr is usually the screen saver program extentions. They are exicutable programs just like the .exe programs. They can take over the computer and do almost anything. Good way to pass on a virus or worm or anything if the programmer does not want to really use them as a screen saver.

1971. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:11:20 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <Yj9Of.8783$Ui.4672@edtnps84>
Source record: 63834

> Frank,
>
> I observed by playing with the relative inductor values on the vertical
> segment and the radial elements that it was possible to move the relative
> feedpoint. This supports tuning the antenna by either inductor.
>
> Reg's c_poise program predicts a 75 uH loading coil.
>
> I am excited with prospect of coil models.
>
> Thanks - Dan

Dan, I have done some minor approximations with your coil. I took the length and diameter to be 12", rather than 300 mm (11.8"). The coil copper pipe diameter is, as specified, 5/16" (0.3125"). I was a little confused with your use of the term "Pitch" as 0.5". In the sense of a screw thread pitch is the distance between adjacent thread peaks, but I took it to mean the actual distance between the outer walls of the pipe; in which case the actual pitch is 0.8125". If this is the case the total pipe length is just over 47 ft. The inductance calculates to 54.2uH, and the Q = 2990. I have not yet run the program in NEC 4, for greater accuracy, since I would like to get the model as close as possible in NEC 2.

If I have gotten the pitch definition wrong then the model dimensions will violate the NEC criteria of the minimum distance between adjacent turns.

The code for this preliminary run is shown below. Some of the odd-ball dimensions are just to approximately equalize segment lengths.

Despite some of the weirdness of 4nec2, concerning "GH" cards, you should be able to run it.

Frank

```
CM Inductor Q Calculation
CE
GH 1 300 0.8125 12 6 6 6 6 0.15625
GW 2 3 0.72322 -5.95625 12 .35542 0 12 0.15625
GW 3 6 .35542 0 12 .35542 0 0 0.15625
GW 4 3 .35542 0 0 6 0 0 0.15625
GS 0 0 0.025400
GE 0
EX 0 3 3 00 1 0
FR 0 5 0 0 3.7 0.02
LD 5 1 1 312 5.7001E7
RP 0 181 1 1000 -90 90 1.00000 1.00000
```

EN

1972. Re: Caronlina Windom characterisation

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:20:36 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <dm8i0219gu036allmtbdkhfdg2aho2cuot@4ax.com>
Source record: 63835

On Sat, 04 Mar 2006 04:11:07 GMT, Bob Miller <NOSPAM@neosoft.com>
wrote:

>Their catalog shows modelled patterns. Might be some NEC models
>available at the Radio Works web site.

Bob, I saw that, but did not find links to model files.

Owen
--

1973. Question for Roy (was Re: 80m mobile antenna question)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:39:27 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <4409280f_2@newsfeed.slurp.net>
Source record: 63836

Roy, your analogy of the car body as a tin can really got me to thinking.

With the whip mounted dead center on the top of the car, I can see how the roof acts like a ground plane (a very short one) but I'm puzzled about the radiation from the lower part of the car body. If one visualizes RF flowing through the sides, hood and trunk of the car, the currents will all be in phase with each other (roughly, of course) but the currents are displaced in space by several feet.

How does this affect the net radiation from the car body as a whole? Is there some addition or subtraction due to having the same current, same phase but at a different location in space, and arranged in a more or less 360 degree pattern?

An interesting thought.

73, Bill W6WRT

1974. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:45:20 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44092970$1_2@newsfeed.slurp.net>
Source record: 63837
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

ORIGINAL MESSAGE:

Anonymous wrote:

> Contact a lawyer. And then see a psychiatrist.
>
> On second thought, see a psychiatrist and THEN contact a lawyer.

~~~~~~
On third thought, just see the psychiatrist. After you're cured, he
might even explain what the "antenna" in this group's name is all about.

Bill T.
~~~~~~

1975. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:49:33 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44092a6d$1_1@newsfeed.slurp.net>
Source record: 63838
Cross-posted to: alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

ORIGINAL MESSAGE:

jc wrote:

> try a $3000.00 ticket for a 10 minute infraction on a logbook

~~~~~~
Try a million dollar lawsuit over permanent disability because some
dumb trucker kept on driving and fell alseep.

Serves you right.

Bill T.
~~~~~~

1976. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 05:51:12 UTC
From: jc <eightball@cox-internet.com>
Message-ID: <h58Of.178294$WH.38556@dukeread01>
Source record: 63831
Cross-posted to: alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

sananda@hotmail.com wrote:
> Concord Police Department Officer Ron Turner is a fucken dirty black
> pig cop
> he stoped me because i had 820lbs. in a 1 ton pu truck
> First the cop called for chp portable scale to get the
> wt of my truck he could not get one then he had me
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> me in it . the scale said i was under 6000lbs. but he gave
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> gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
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> over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
> boxes was cardboard. just before he let me go he had me go
> into the restroom at the moving co. and told me to strip with 2
> back up cops 1 male cop and 1 girl cop. and then he let me
> go after 8 hours. got to court i showed him how to do the
> math on the tire load range and he walks up to the judge and
> says ALL CHARGES DROPPED.
>
> Ron tuner who is 300lb black dirty pig cop needs to go
> hunting with dick cheney .
>
>
> Toilets
> Police employees in Concord, California, filed a $30 million
> lawsuit against the Concord Police Department after they found
> a hidden in the restroom.
>

You should see this problem from the prof truckdrivers point
this crap has been going on for years.
and people in CA wonder why stuff cost soo much in CA?
try a $3000.00 ticket for a 10 minute infraction on a logbook
want to see more than afew bad cop's go and see KERN county this seems
to be the sweet spot where the a$$hole's hang.I mean serve and protect
FWIW
OTR trucker.......20 years +
J.C.

1977. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 06:11:50 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <44092FA6.70909@comcast.net>
Source record: 63839

Frank,

Thank you. Your assumptions were correct. The only difference is 54 uH vs 75.

The model below runs on nec2. I tried a quick load it into 4nec2 without success, it seems to be confused by the GH and GS cards. I will have to pick this up tomorrow.

Thanks again - Dan

Frank wrote:
>>Frank,
>>
>>I observed by playing with the relative inductor values on the vertical
>>segment and the radial elements that it was possible to move the relative
>>feedpoint. This supports tuning the antenna by either inductor.
>>
>>Reg's c_poise program predicts a 75 uH loading coil.
>>
>>I am excited with prospect of coil models.
>>
>>Thanks - Dan
>
>
> Dan, I have done some minor approximations with your coil. I took the
> length and diameter to be 12", rather than 300 mm (11.8"). The coil copper
> pipe diameter is, as specified, 5/16" (0.3125"). I was a little confused
> with your use of the term "Pitch" as 0.5". In the sense of a screw thread
> pitch is the distance between adjacent thread peaks, but I took it to mean
> the actual distance between the outer walls of the pipe; in which case the
> actual pitch is 0.8125". If this is the case the total pipe length is just
> over 47 ft. The inductance calculates to 54.2uH, and the Q = 2990. I have
> not yet run the program in NEC 4, for greater accuracy, since I would like
> to get the model as close as possible in NEC 2.
>
> If I have gotten the pitch definition wrong then the model dimensions will
> violate the NEC criteria of the minimum distance between adjacent turns.
>
> The code for this preliminary run is shown below. Some of the odd-ball
> dimensions are just to approximately equalize segment lengths.
>
> Despite some of the weirdness of 4nec2, concerning "GH" cards, you should be
> able to run it.
>
> Frank

```
>
> CM Inductor Q Calculation
> CE
> GH 1 300 0.8125 12 6 6 6 6 0.15625
> GW 2 3 0.72322 -5.95625 12 .35542 0 12 0.15625
> GW 3 6 .35542 0 12 .35542 0 0 0.15625
> GW 4 3 .35542 0 0 6 0 0 0.15625
> GS 0 0 0.025400
> GE 0
> EX 0 3 3 00 1 0
> FR 0 5 0 0 3.7 0.02
> LD 5 1 1 312 5.7001E7
> RP 0 181 1 1000 -90 90 1.00000 1.00000
> EN
>
>
>
>
```

1978. Re: Question for Roy (was Re: 80m mobile antenna question)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 06:31:49 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120id2o6n2b1od9@corp.supernews.com>
Source record: 63840

Think for a moment about a wire carrying RF current. RF current in any good conductor stays very close to the surface, so it's valid to imagine it flowing right on the surface. On a wire, the current spreads uniformly around the wire (unless it's very close to some other conductor), and each little part radiates. But at any distant point, the fields from the currents at various places around the wire (at a single location along the wire) are virtually the same, so it acts like a single current filament flowing on an infinitesimally thin wire. This is, in fact, how NEC and similar programs model conductor currents.

The same even spreading happens as the wire gets fatter and fatter, but only up to a point. The model of a single current filament begins breaking down when the fields from different places around the wire are noticeably different at a distant point. This happens when the wire diameter becomes an appreciable fraction of a wavelength. Other things happen, then, too -- circumferential currents -- ones flowing around the wire -- develop, resulting in (or being caused by, depending on your point of view) non-uniform current distribution around the wire. And the wire itself affects the field. That is, the current on the side away from a distant point can't directly radiate to the distant point because the wire is in the way. Because the various current contributions around the wire won't all add together at a distant point any longer, the pattern changes.

I can't give any more specific answer to the question, really, than that the pattern will become more complex. In the case of the example I gave earlier with the cylindrical "car", if you raise the frequency, you'll reach a point where these effects happen. One result will be that the horizontal pattern will no longer be omnidirectional, but develop lobes. The height of the cylinder or car might affect the way current is distributed around it -- I haven't thought about it enough to hazard a guess.

The good news is that today's modeling programs do a good job of showing these effects. The general technique is to represent flat surfaces such as a car top or side as a wire grid, to stay within the program's requirements that wire diameter must be no more than a very small fraction of a wavelength. As long as the holes in the grid are kept to a tenth of a wavelength or less, results are quite good.

Roy Lewallen, W7EL

Bill Turner wrote:
> Roy, your analogy of the car body as a tin can really got me to
> thinking.
>

> With the whip mounted dead center on the top of the car, I can see how
> the roof acts like a ground plane (a very short one) but I'm puzzled
> about the radiation from the lower part of the car body. If one
> visualizes RF flowing through the sides, hood and trunk of the car, the
> currents will all be in phase with each other (roughly, of course) but
> the currents are displaced in space by several feet.
>
> How does this affect the net radiation from the car body as a whole? Is
> there some addition or subtraction due to having the same current, same
> phase but at a different location in space, and arranged in a more or
> less 360 degree pattern?
>
> An interesting thought.
>
> 73, Bill W6WRT

1979. Re: 80m mobile antenna question & "Skeleton Sleeve Antenna"

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 10:14:42 UTC
From: Dan Richardson <k6mhe>
Message-ID: <ptoi02tk4kfkkvsr7v3upvfn7qih9sdgop@4ax.com>
Source record: 63912

On Fri, 3 Mar 2006 02:28:54 -0800, "Harbin" <harbinjr@adelphia.net>
wrote:

>Howdy Dan:
> Thanks for the info on "Mobile Vhf Ant.pdf", very interesting stuff.
> I was checking out the rest of your site, and found an interesting pdf on the "Skeleton Sleeve Antenna",
>and it's similarity of the J-pole, and you state that the distance from the 1/4 wave elements, and the 1/2 wave
>element is not that critical. I have heard this before about the elements on the J-pole too, but what I don't understand
>is why this dimension is not critical, it is an electrical path that should be subtracted from both elements, right?
>Is it correct to shorten both elements by 1/2 of the dimension between the elements?

Harbin,

By "critical" I meant that the dimension shown can vary somewhat with
no loss of performance. For example, if you do the math you'll see
that the distance (shown in Figure 5) between the center 3/4-wave
element and the shorter 1/4-wave elements is 3.889 inches. If that
figure varied say between 3.5 and 4-inches there would be no
noticeable effect on operation. The important thing is (as I stated in
the article) is to maintain equal spacing the between the center
element and each of the outer 1/4-wave elements. The equal spacing is
the critical thing. What little change there might result in the
resonate frequency can easily be adjusted as stated in the article.

73,

Danny, K6MHE

1980. Re: Question for Roy (was Re: 80m mobile antenna question)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 11:12:37 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44097625_3@newsfeed.slurp.net>
Source record: 63841

Thanks, Roy. Interesting.

73, Bill W6WRT

1981. Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 17:09:18 UTC
From: "Allan W. Bart, Jr." <allanba@verizon.net>
Message-ID: <2RjOf.253$eJ1.142@trndny05>
Source record: 63842

Hello,

I have owned the book for about 15 years and now I am hearing aout
errors. does anyone have a list of them?

AB

1982. Re: antenna impedance - calculated 10 - 20 Ohms - measured 36 Ohms??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 17:54:17 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <dvkOf.13980$M52.16@edtnps89>
Source record: 63843

> Frank,
>
> Thank you. Your assumptions were correct. The only difference is 54 uH vs
> 75.
>
> The model below runs on nec2. I tried a quick load it into 4nec2 without
> success, it seems to be confused by the GH and GS cards. I will have to
> pick this up tomorrow.
>
> Thanks again - Dan

No problem Dan, I find all this very interesting. You could change all the dimensions to metric, and drop the GS card. I don't know why it is having trouble with GH. If you run some of the inductance programs, such as: http://www.captain.at/electronics/coils/, where I have used the number of turns as 14.7, and length and diameter 12"; the inductance calculates to 44.71 uH.

Minimizing the proximity effect, with #18 AWG, NEC computes z = 3.3 + j1274. Therefore Q = 433, and L = 60.8 uH; an even greater difference that the inductance programs, but closer to your requirement of 75 uH. I have tried to run the program on NEC 4.1 to see if it agrees with NEC 2, but am having trouble with connecting the helix since the end points don't appear to be in the correct position.

Frank

1983. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 18:18:55 UTC
From: Me <Me@shadow.orgs>
Message-ID: <Me-4CC8EB.09212304032006@netnews.worldnet.att.net>
Source record: 63844

In article <Pb2Of.21106$d9.10221@read2.cgocable.net>,
Jules <jhgskldhgskldhgskcvbyren@dhgkjhdytrn.com> wrote:

> Me wrote:
>
> > The basic facts are: Any commercial civilian Xband Radar will NOT even
> > come close to approching FCC RF Radiation Biologic Health Maximum
> > Radiation Power Densities even if you are right next to the antenna.
> > You are more likely to get hurt by the rotating antenna hiting you
> > in the head than from the RF Energy coming out of the antenna.
> > Wx Radar on Commecrcial Aircraft usually are left in Standby Mode
> > untill the aircraft has taxied onto the tarmac beside the active runway.
> runway
> > Eve if they were activated, most xBand versions still don't have the
> > Power Density one foot in front of the antenna to approch the FCC RF
> > Radiation Biologic Health Maximum.
> > Military Radars are a totally different beast altogether, and there are
> > very strict operational rules for when they can be operated inside US
> > Water and Airspace.
>
> On my plane the radar is 7.6 kw (xband). The manual says not to use it
> on the ground especially around people. Also they have been know to
> cause some sort of sparking on metal so fuel trucks are to be avoided.
> Shop people are cautioned to make sure it is not emitting if in stby
> mode, some do. The display will say STBY, the antenna not panning, but
> it is emitting. Go figure. Small airplanes have xband not because it is
> wimpy but because of antenna size constraints. These are 10 ro 12 inch
> diameter "flat dish" antennas. Lots of waveguide-like openings on it.
> Extreemly directional. And this is a small 6 seater plane.
>
> Large weather radars, ground based are sband. Big antennas.
>
> In the late 80's many radars dropped down to under 10 watts. Most under
> one watt. Mainly due to improved signal processing. Even on large jets
> with large dishes. With the lower power came more managable attenuation
> affects in rain too.
>
> You do not want your head one foot away from my radar when it is on. And
> I wouln't let you try it, even if you asked.
>
>
>

Jules, you really need to go back to Radar School and try and understand
the technology that your using. 7.6Kw Pulsed Xband Radars have an AVERAGE

Power of less than 20 watts. It isn't the Peak Pulse Power that fries you, or causes the sparks, it is the AVERAGE Power, and less than 20 watts one foot in front of ANY antenna is considerably less than that, due to RF Radiation being subject to the Inverse Square Law. Most of the old Decca 20Kw Commercial Marine Radars in xBand had Average Powers less that 35 watts, and were well below maximum Radiation Power Densities directly in from of the 6ft Slotline Antennas.
Your socalled Flat Dish antennas at nothing more than a tuned Phase Array, and again, one foot out in front, Power Densities are well below maximum permissable Power Densities.

Third Generation Commercial xBand Radar Technology, that came in the 80's, introduced Solid State LNA's, Ring Circulating Isolators, and Logrythemic IF ampilfiers, which improved the receivers Noise Figures, and Dynamic Gain by an Order of Magnitude. This is all in the RF Path, and had nothing to do with signal processing of baseband signals which didn't come into play untill DSP Processors were intoduced in the mid 90's and the Fourth Generation of Commercial Radars.

Manuals are written by folks who understand the technology, about as much as the lawyers, that approve them before they are published. Yes, there are safety concerns with radar operations around FBO Fueling Operations, but the incidents of actual causal problems, are rare to the extreme.

Again, all the above is TRUE only for commercial radars, and may, or may not be TRUE, and likely NOT TRUE for Military Radars, as these are more often than not CW operating, and, or doppler type radars that are NOT Pulsed.

Me

1984. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 18:38:44 UTC
From: Jim Chandler <n427c@gte.net>
Message-ID: <U8lOf.3533$CT.658@trnddc04>
Source record: 63845
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

sananda@hotmail.com wrote:

> Concord Police Department Officer Ron Turner is a fucken dirty black
> pig cop
> he stoped me because i had 820lbs. in a 1 ton pu truck
> First the cop called for chp portable scale to get the
> wt of my truck he could not get one then he had me
> go to the chp truck scale on the hwy to get the wt of
> my truck no one was there then he had me go to moving co.
> and had me drive on there scale to get wt of my truck with
> me in it . the scale said i was under 6000lbs. but he gave
> me a ticket for overloaded tire load range . he added the
> gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
> boxes was cardboard. just before he let me go he had me go
> into the restroom at the moving co. and told me to strip with 2
> back up cops 1 male cop and 1 girl cop. and then he let me
> go after 8 hours. got to court i showed him how to do the
> math on the tire load range and he walks up to the judge and
> says ALL CHARGES DROPPED.
>
> Ron tuner who is 300lb black dirty pig cop needs to go
> hunting with dick cheney .
>
>
> Toilets
> Police employees in Concord, California, filed a $30 million
> lawsuit against the Concord Police Department after they found
> a hidden in the restroom.
>

Well, for your information, Moron, you DO NOT add the tire load range to the gross weight. The gross weight is the absolute maximum that the vehicle is designed for. The tire load range is the weight that the tire is designed to carry and have a margin for safety. The one ton pickup's maximum gross weight would be the EMPTY weight of the vehicle plus the 2000 pound weight of the cargo. face it, you screwed up. It's YOUR fault that you got a ticket, not the cops. YOU are the fat dumbass that earned it. Grow up, whiner.

JimC

1985. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 19:01:30 UTC
From: The Visitor <ksjhdsdfssjhfk@shduiysdfsrewh.com>
Message-ID: <aulOf.21209$d9.17844@read2.cgocable.net>
Source record: 63846

Me wrote:
7.6Kw Pulsed Xband Radars have an AVERAGE
> Power of less than 20 watts.

I know it works in pulses and it is the pulse you should look out for.
Like a microwave oven , it can induce voltages in pieces of metal, high
enough to cause sparks. What would that do to a person with a pacemaker?

I only know the power rating.
I am not sure arcing incidents are that rare as I have met a couple of
people who claim to have seen it happen.

If a hammer drops on your foot and then rests there for 20 minutes, is
it the pulse or the average force to look out for.

My radar...

Peak Power Output: 7.5 KW nominal, 6.0 KW minimum

Output Frequency: 9375 Mhz (X-Band)

I think it does 160 pulses per second.

You would be willing to take the full brunt of that one foot away? I
will be back at the airport this afternoon and ask for someone to hold
thier head up to the radome. I never went to radar school.

I'll take your word for it, but I won't volunteer!

1986. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 19:31:01 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ducptk$nh6$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63847

As an ex-RAF radar technician, during WW2 I have stood in the radar beam, on many occasions, on the airfield runway and in the maintenance workshop, just a few feet from the parabolic dish, of a 50 KW, 3 Gigahertz, airborne radar.

It was the radar which guided death-dealing machines to their targets, the many incinerated German cities culminating in the innocent city of Dresden - entirely destroyed just to educate the Russians whose tanks were only a few hours away.

I was not warned of the possible dangers of such exposure. The powers that be were not aware of them either in those days.

I am now in my 81st year. Still alive. I have fathered 5 healthy children and have grandchildren. Draw your own conclusions about the real dangers of electromagnetic radiation.

Reg.

1987. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 21:21:15 UTC
From: jgboyles@aol.com
Message-ID: <1141507275.315496.201100@z34g2000cwc.googlegroups.com>
Source record: 63848

Allan W. Bart, Jr. wrote:
> Hello,
>
> I have owned the book for about 15 years and now I am hearing aout
> errors. does anyone have a list of them?
>
> AB

Allan, My copy is a First edition, second printing, and it has an Errata section that is quite large (4 pages worth). I started going through making corrections in the text, but got tired of it after about 1 page.

Gary N4AST

1988. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 21:28:12 UTC
From: "Al \"Sparks\" Heere" <aheere@home.nl>
Message-ID: <dud0pf$8aa$1@news1.zwoll1.ov.home.nl>
Source record: 63849

Ok sofar....

I want to receive low frequencies < 500 Khz.
Planning to build long wire for it inside the house.

How to connect this longwire to coax?

Only for receiving, do I need balun then also ?

"Cecil Moore" <mycall@arrl.net> schreef in bericht
news:gvCNf.17312$rL5.8757@newssvr27.news.prodigy.net...
> Reg Edwards wrote:
>> Ten or more turns of twin, 18 awg, stranded, speaker cable is even
>> better.
>>
>> Easier to make and has higher choke impedance and lower loss.
>>
>> I don't know why you mess about with coax.
>
> The optimum Z0 for the wire that is used is the square root
> of the product of the input impedance and the output impedance.
> I vary the length of my ladder-line to accomplish resonance
> in my antenna system. The impedances seen at the output of
> my balun averages 50 ohms. Thus, the optimum Z0 for my
> balun wire is 50 ohms. Magnet wire will do that but speaker
> cable won't. Ten turns of RG-400 is really convenient. I use
> RG-400 for everything inside of the shack. All the 1/2" dia.
> stuff is outside.
> --
> 73, Cecil http://www.qsl.net/w5dxp

1989. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 22:59:52 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dud658$o26$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63850

Nobody's books or publications are bibles.

Not even Terman's or B.L & E's.

Reg

1990. Re: pse info balun

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 22:59:52 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dud658$o26$2@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63851

You don't need a balun or coax.

A feedline at low frequencies is very much short of a wavelength.

Just extend your antenna wire direct to the receiver. Perhaps use a
tuned preselector. And away you go!

Reg.

1991. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 22:59:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dud659$o26$4@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63852

"Dot" <dot@dot.dot> wrote in message
news:0d4k025qor7l2u6ne3k6jdjql6en5ajdko@4ax.com...
> On Sat, 4 Mar 2006 19:31:01 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>
> >I am now in my 81st year. Still alive. I have fathered 5 healthy
> >children and have grandchildren. Draw your own conclusions about
the
> >real dangers of electromagnetic radiation.
>
> In the interests of caution and safety... I would congratulate you
on
> becoming an octogenarian, having a fine brood of kids and grandkids,
and I'd
> wish to be so lucky... but then I'd remind you just how darned lucky
you
> are.
==

I'm not lucky. I'm just an ordinary person. My genetic history
remains unaffected by high-power electromagnetic radiation. On the
contrary, it seems to have done me good!

But if I should eventually die with a brain tumour no doubt my
electromagnetic history will unjustly be blamed. ;o)

Reg.

1992. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 23:05:14 UTC
From: "sananda@hotmail.com" <sananda--@hotmail.com>
Message-ID: <1141513514.394957.311590@z34g2000cwc.googlegroups.com>
Source record: 63853
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

Jim Chandler wrote:
> sananda@hotmail.com wrote:
>
> > Concord Police Department Officer Ron Turner is a fucken dirty black
> > pig cop
> > he stoped me because i had 820lbs. in a 1 ton pu truck
> > First the cop called for chp portable scale to get the
> > wt of my truck he could not get one then he had me
> > go to the chp truck scale on the hwy to get the wt of
> > my truck no one was there then he had me go to moving co.
> > and had me drive on there scale to get wt of my truck with
> > me in it . the scale said i was under 6000lbs. but he gave
> > me a ticket for overloaded tire load range . he added the
> > gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> > is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> > over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
> > boxes was cardboard. just before he let me go he had me go
> > into the restroom at the moving co. and told me to strip with 2
> > back up cops 1 male cop and 1 girl cop. and then he let me
> > go after 8 hours. got to court i showed him how to do the
> > math on the tire load range and he walks up to the judge and
> > says ALL CHARGES DROPPED.
> >
> > Ron tuner who is 300lb black dirty pig cop needs to go
> > hunting with dick cheney .
> >
> >
> > Toilets
> > Police employees in Concord, California, filed a $30 million
> > lawsuit against the Concord Police Department after they found
> > a hidden in the restroom.
> >
>
> Well, for your information, Moron, you DO NOT add the tire load range to
> the gross weight. The gross weight is the absolute maximum that the
> vehicle is designed for. The tire load range is the weight that the
> tire is designed to carry and have a margin for safety. The one ton
> pickup's maximum gross weight would be the EMPTY weight of the vehicle
> plus the 2000 pound weight of the cargo. face it, you screwed up. It's
> YOUR fault that you got a ticket, not the cops.

YOU are the fat dumbass you ass go back and read it you ass
but he gave
me a ticket for overloaded tire load range . he added the
gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
over loaded. i had me 150lbs + 2 boxes 820lbs.

if you can't read don't post a reply you ass -

1993. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 23:11:55 UTC
From: "sananda@hotmail.com" <sananda--@hotmail.com>
Message-ID: <1141513915.382206.86290@i39g2000cwa.googlegroups.com>
Source record: 63854
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

Jim Chandler wrote:
> sananda@hotmail.com wrote:
>
> > Concord Police Department Officer Ron Turner is a fucken dirty black
> > pig cop
> > he stoped me because i had 820lbs. in a 1 ton pu truck
> > First the cop called for chp portable scale to get the
> > wt of my truck he could not get one then he had me
> > go to the chp truck scale on the hwy to get the wt of
> > my truck no one was there then he had me go to moving co.
> > and had me drive on there scale to get wt of my truck with
> > me in it . the scale said i was under 6000lbs. but he gave
> > me a ticket for overloaded tire load range . he added the
> > gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> > is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> > over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
> > boxes was cardboard. just before he let me go he had me go
> > into the restroom at the moving co. and told me to strip with 2
> > back up cops 1 male cop and 1 girl cop. and then he let me
> > go after 8 hours. got to court i showed him how to do the
> > math on the tire load range and he walks up to the judge and
> > says ALL CHARGES DROPPED.
> >
> > Ron tuner who is 300lb black dirty pig cop needs to go
> > hunting with dick cheney .
> >
> >
> > Toilets
> > Police employees in Concord, California, filed a $30 million
> > lawsuit against the Concord Police Department after they found
> > a hidden in the restroom.
> >
>
> Well, for your information, Moron, you DO NOT add the tire load range to
> the gross weight. The gross weight is the absolute maximum that the
> vehicle is designed for. The tire load range is the weight that the
> tire is designed to carry and have a margin for safety. The one ton
> pickup's maximum gross weight would be the EMPTY weight of the vehicle
> plus the 2000 pound weight of the cargo. face it, you screwed up. It's
> YOUR fault that you got a ticket, not the cops.

YOU are the fat dumbass

YOU are the fat dumbass you ass go back and read it you ass
but he gave cop
me a ticket for this is what is said on the ticket: overloaded tire
load range . he added the
gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
over loaded. i had me 150lbs + 2 boxes 820lbs.

if you can't read don't post a reply you ass -

1994. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 23:34:59 UTC
From: jgboyles@aol.com
Message-ID: <1141515299.293793.105240@z34g2000cwc.googlegroups.com>
Source record: 63855

Reg Edwards wrote:
> Nobody's books or publications are bibles.
>
> Not even Terman's or B.L & E's.
> ----
> Reg
Nobody's books or publications are bibles.\
What are we supposed to believe? It would take many years to verify
all that has been printed over the last 100 years. If I am a ham and I
wish to put up an antenna, what should I do? Surely not refer to to
the Bibles.
Gary N4AST

1995. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-04 23:42:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dud8kfkf1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63856

Incidentally, in 1945, I was an unsuspecting guinea pig sent to the radioactive aftermath of Hiroshima for a week or so.

Again, my genetic history appears to have remained unaffected. Perhaps, as you say, I am lucky.

I am just another very minor statistic, like everybody else, in the field of statistics and probability. See the widespread works of Sir Ronald Arthur Fisher, the greatest statistician of all time who died in the 1960's. Just imagine what he could have done with just a modern pocket calculator, never mind a personal computer.

Reg.
>

1996. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 00:36:14 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dudbpu$911$2@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63858

<jgboyles@aol.com> wrote in message
news:1141515299.293793.105240@z34g2000cwc.googlegroups.com...
>
> Reg Edwards wrote:
> > Nobody's books or publications are bibles.
> >
> > Not even Terman's or B.L & E's.
> > ----
> > Reg
> Nobody's books or publications are bibles.\
> What are we supposed to believe? It would take many years to verify
> all that has been printed over the last 100 years. If I am a ham
and I
> wish to put up an antenna, what should I do? Surely not refer to to
> the Bibles.
> Gary N4AST

==========

Nobody understands the bibles without a great deal of study. They are full of mistakes anyway. Most of them were written just to make a living. Its easy to understand what THAT leads to.

Just put up some wire and you will learn more in a few hours of listening and transmitting than a lifetime of reading about it.

Reg.

1997. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 00:42:40 UTC
From: Scott <how.do@you.do>
Message-ID: <zeSdnf4kre6fqZfZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 63859
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

"sananda@hotmail.com" <sananda--@hotmail.com> wrote in message
news:1141513915.382206.86290@i39g2000cwa.googlegroups.com...

>
> YOU are the fat dumbass
>

Before throwing stones like that, you might consider applying the concepts
of punctuation and capitalization to your posts. It may take a little of
the second grade charm out your writing, but it will certainly make you seem
to be much less of a fat dumbass yourself.

1998. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 01:06:20 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duddiccso1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63860

I fully admit my antenna programs are not bibles.

They are merely my idea of how things can be modelled.

In general they are well inside the ball park.

They serve their intended purpose.

What better quality can you ask for?

I am a Fellow of the British Institute of Quality Asurance but I don't
brag about it.

Reg.

1999. Re: Concord Police Department Officer Ron Turner is a fucken dirtyblack pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 01:09:04 UTC
From: oh well <ohwell61238@yahoo.com>
Message-ID: <120keieq746nh56@corp.supernews.com>
Source record: 63861
Cross-posted to: alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

Jim Chandler <n427c@gte.net> wrote in message
news:U8lOf.3533$CT.658@trnddc04...
> sananda@hotmail.com wrote:
>
> > Concord Police Department Officer Ron Turner is a fucken dirty black
> > pig cop
> > he stoped me because i had 820lbs. in a 1 ton pu truck
> > First the cop called for chp portable scale to get the
> > wt of my truck he could not get one then he had me
> > go to the chp truck scale on the hwy to get the wt of
> > my truck no one was there then he had me go to moving co.
> > and had me drive on there scale to get wt of my truck with
> > me in it . the scale said i was under 6000lbs. but he gave
> > me a ticket for overloaded tire load range . he added the
> > gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> > is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> > over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
> > boxes was cardboard. just before he let me go he had me go
> > into the restroom at the moving co. and told me to strip with 2
> > back up cops 1 male cop and 1 girl cop. and then he let me
> > go after 8 hours. got to court i showed him how to do the
> > math on the tire load range and he walks up to the judge and
> > says ALL CHARGES DROPPED.
> >
> > Ron tuner who is 300lb black dirty pig cop needs to go
> > hunting with dick cheney .
> >
> >
> > Toilets
> > Police employees in Concord, California, filed a $30 million
> > lawsuit against the Concord Police Department after they found
> > a hidden in the restroom.
> >
>
> Well, for your information, Moron, you DO NOT add the tire load range to
> the gross weight. The gross weight is the absolute maximum that the
> vehicle is designed for. The tire load range is the weight that the
> tire is designed to carry and have a margin for safety. The one ton
> pickup's maximum gross weight would be the EMPTY weight of the vehicle
> plus the 2000 pound weight of the cargo. face it, you screwed up. It's
> YOUR fault that you got a ticket, not the cops. YOU are the fat dumbass
> that earned it. Grow up, whiner.

>
> JimC

I think somebody is getting their leg pulled.

http://www.dot.ca.gov/hq/traffops/trucks/trucksize/weight.htm

oh well...........

2000. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 01:12:31 UTC
From: Jim Chandler <n427c@gte.net>
Message-ID: <3WqOf.20323$W42.6686@trnddc02>
Source record: 63862
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna

sananda@hotmail.com wrote:

> Jim Chandler wrote:
>
>>sananda@hotmail.com wrote:
>>
>>
>>>Concord Police Department Officer Ron Turner is a fucken dirty black
>>>pig cop
>>>he stoped me because i had 820lbs. in a 1 ton pu truck
>>>First the cop called for chp portable scale to get the
>>>wt of my truck he could not get one then he had me
>>>go to the chp truck scale on the hwy to get the wt of
>>>my truck no one was there then he had me go to moving co.
>>>and had me drive on there scale to get wt of my truck with
>>>me in it . the scale said i was under 6000lbs. but he gave
>>>me a ticket for overloaded tire load range . he added the
>>>gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
>>>is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
>>>over loaded. i had me 150lbs + 2 boxes 820lbs. in bed -in the
>>>boxes was cardboard. just before he let me go he had me go
>>>into the restroom at the moving co. and told me to strip with 2
>>> back up cops 1 male cop and 1 girl cop. and then he let me
>>>go after 8 hours. got to court i showed him how to do the
>>>math on the tire load range and he walks up to the judge and
>>>says ALL CHARGES DROPPED.
>>>
>>>Ron tuner who is 300lb black dirty pig cop needs to go
>>>hunting with dick cheney .
>>>
>>>
>>>Toilets
>>>Police employees in Concord, California, filed a $30 million
>>>lawsuit against the Concord Police Department after they found
>>>a hidden in the restroom.
>>>
>>
>>Well, for your information, Moron, you DO NOT add the tire load range to
>>the gross weight. The gross weight is the absolute maximum that the
>>vehicle is designed for. The tire load range is the weight that the
>>tire is designed to carry and have a margin for safety. The one ton
>>pickup's maximum gross weight would be the EMPTY weight of the vehicle

>>plus the 2000 pound weight of the cargo. face it, you screwed up. It's
>>YOUR fault that you got a ticket, not the cops.
>
>
> YOU are the fat dumbass
>
> YOU are the fat dumbass you ass go back and read it you ass
> but he gave cop
> me a ticket for this is what is said on the ticket: overloaded tire
> load range . he added the
> gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> over loaded. i had me 150lbs + 2 boxes 820lbs.
>
> if you can't read don't post a reply you ass -
>

Well, your whiney blathering is rather difficult to read. You haven't figured out where the Shift key is or what it's for and your writing is atrocious. If he had you weighed the scales would have told him that you were not overloaded, if you were loaded as you claim. Personally I think you are just a whiney moron who got a ticket and can't deal with it. Now please stop cross posting to AFPF. Cross posting is not welcome there.

JimC

2001. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 01:42:23 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440a41ff_3@newsfeed.slurp.net>
Source record: 63864
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

ORIGINAL MESSAGE:

sananda@hotmail.com wrote:

> YOU are the fat dumbass
>
> YOU are the fat dumbass you ass go back and read it you ass
> but he gave cop
> me a ticket for this is what is said on the ticket: overloaded tire
> load range . he added the
> gross wt 6000lbs + 3042 tire load range for ea tire = 12168lbs
> is 18168 - 6000 - 6000 = 12168lbs ticket said i was 12168lbs
> over loaded. i had me 150lbs + 2 boxes 820lbs.
>
> if you can't read don't post a reply you ass -

~~~~~~
By noting the quality of grammar, the disorganized sentenced structure
and observing the level of adrenaline flowing in sanandan's system, I
wouldn't believe a word he says.

Bill T.
~~~~~~

2002. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 01:44:17 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <6sfk025u6mpqmccm9cvlvdt2pcr4rubvor@4ax.com>
Source record: 63863

An interesting point of view. I have been participating in a Bible Study program for the last three years based on the Old Testament and the New Testament. One of the more important things I have learned is that there are many inconsistencies and cases of ambiguity.

We are fortunate in all cases that someone was willing to sit down and put the documents together so that we could enjoy the benefits of their studies!

If Terman made an error, I can forgive him. My copy is older than I am...

Sometimes a published error is what it takes to get the right answer.

BTW, thanks for all the programs Reg. I am learning a lot from them!

On Sat, 4 Mar 2006 22:59:52 +0000 (UTC), "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:

>Nobody's books or publications are bibles.
>
>Not even Terman's or B.L & E's.
>----
>Reg
>
>
John Ferrell W8CCW

2003. NBFM transceiver @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 03:21:01 UTC
From: mazerom <romulo.maggay@wherewoof.com>
Message-ID: <1141528860.979067.156700@i40g2000cwc.googlegroups.com>
Source record: 63865

hello guys,

im into designing a base station that needs a transceiver with FM as
well as digital modulation ability(or Spread spectrum) at 2.4ghz.i
found 3 products;winceiver(we2408),numa technologies(nt2924) and
toshiba(tb2301m)
any information for additional chipsets that i may venture with?
thanks a lot!

mazerom

2004. Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 03:29:51 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dudlvf$2kg$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63866

I have just had several glasses of Australian Zonte's Footstep wine.
I can recommend it. Its name can be traced back to a marsupial which
replaced the dinosaurs.

Transmission lines, which even the dinosaurs knew nothing about, are
associated with losses of one sort and another. But there is one sort
of loss which is never mentioned in discussions on this newsgroup. It
is reflection loss.

Reflection loss is sometimes known as mismatch loss.

It is that loss which occurs in the load impedance because it is not
matched to the line impedance Zo. When the line is not matched there
is a reflection of amps and volts back towards the generator.

The reflected volts and amps, in conjunction with the existing volts
and amps, present to the generator an impedance which causes it to
deliver to the line exactly the power in the load plus the power lost
in the line. That this occurs is quite obvious.

When calculated, the power lost in the line automatically takes into
account the increase in loss due to SWR which occurs on the line due
to the mismatch of the load.

But the most important parameter is not the SWR but the reflection
coefficient, Gamma.

Gamma = (Zt - Zo) / (Zt + Zo).

The loss in the load due to reflection is given by

Reflection Loss = 4.343 * Ln(1 - Square(G)) decibels.

where G is the magnitude of the reflection coefficient which is easy
to measure.

Reg.

2005. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 03:59:34 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <GmtOf.44734$H71.23709@newssvr13.news.prodigy.com>
Source record: 63867

Reg Edwards wrote:
> The reflected volts and amps, in conjunction with the existing volts
> and amps, present to the generator an impedance which causes it to
> deliver to the line exactly the power in the load plus the power lost
> in the line. That this occurs is quite obvious.

A tuner will present the designed-for impedance to the
generator and thus develops reflection gain that neutralizes,
to varying degrees, the reflection loss at the load.
--
73, Cecil http://www.qsl.net/w5dxp

2006. Re: NBFM transceiver @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 04:22:25 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <1l5qd3-1jp.ln1@p400bob.personal.cox.net>
Source record: 63869

Maxim make a range of chips you may be interested in. Start with;

http://www.maxim-ic.com/Wireless.cfm

I have been looking with interest at one of there 900MHz products. It
takes a single IF I/O (eg 10.7MHz) and can produce QPSK/QAM etc at
around 2dBm. I have been looking at a transceiver chip at;

http://www.maxim-ic.com/quick_view2.cfm/qv_pk/1773

Havent looked at their 2.4GHz offerings (if any)

Cheers Bob VK2YQA

mazerom wrote:
>
> hello guys,
>
> im into designing a base station that needs a transceiver with FM as
> well as digital modulation ability(or Spread spectrum) at 2.4ghz.i
> found 3 products;winceiver(we2408),numa technologies(nt2924) and
> toshiba(tb2301m)
> any information for additional chipsets that i may venture with?
> thanks a lot!
>
> mazerom
>

2007. Re: Concord Police Department Officer Ron Turner is a fucken dirtyblack pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 05:02:53 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <TiuOf.419$wp.163@fed1read12>
Source record: 63868
Cross-posted to: alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

"oh well" <ohwell61238@yahoo.com> wrote in message
news:120keieq746nh56@corp.supernews.com...

>
> I think somebody is getting their leg pulled.

Ah, yes!

I have been a Californian most of my life (now 63+). Our cops rarely seem to care what you have in the back of a pickup. It would have to be a cage full of naked, screaming children to get their attention. They want the speeders, the weavers, the red-light runners -- all genuine hazards.

In fact, overloaded pickups are quite common -- with tall sideboards to contain all the junk -- yet I can't remember the last time I saw one pulled over.

2008. FS: Heath Marauder transmtter $100

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 05:12:19 UTC
From: NA <n6pjqnot@nospamarrl.net>
Message-ID: <TquOf.1250$e1.1028@tornado.socal.rr.com>
Source record: 63870
Cross-posted to: rec.ham-radio.swap,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.swap,rec.radio.boatanchors,rec.radio.swap

I have checked with the local shipping service.

Shipping via FEDX will be between $150 and $200 to most address on the US mainland.

I have seen Marauders not meet the reserve on Ebay at over $150 plus shipping.

I will sell this one for $100 plus the actual shipping cost charged by the local shipping store.

Thanks for reading Jim N6PJQ AT Hotmail

2009. Twinlead antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 05:13:57 UTC
From: "Paul R. Stoetzer" <stoetze4@msu.edu>
Message-ID: <duds2l$j75$1@news.msu.edu>
Source record: 63871

I needed an indoor HF antenna recently and had a 40 ft roll of Radio Shack twinlead. I cut down the middle about 16.5 feet, hung one end at one side of the room and the other end at the other side of the room and fed it into the balanced line input on my tuner. It tunes easily. I have no ground set up, so I ran another 16.5 foot wire from the ground port. Making contacts is a bit of a struggle, from my QTH in Michigan I've worked Nevada and Arizona on PSK and during the DX contest today in limited operation near sunset I worked Barbados and the Dominican Republic with about 50W (probably a bit of a high level of RF radiation, I know). The question I have is what the downside of this is. I have seen many websites that show various antennas fed with twinlead, but I've never seen my approach (the twinlead used for both the antenna and feedline). Since I got this roll of twinlead on clearance from Radio Shack for 38 cents, this is a cheap antenna indeed.

73,
Paul, N8HM

2010. Re: Younger Sister Caught In BathTub With Hidden Cam... 4295 [2/2]

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 05:29:14 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <zHuOf.420$wp.375@fed1read12>
Source record: 63872
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital

"Ron H" <rnharsh@attbi.com> wrote in message
news:WI0Of.29940$5r5.20323@newsfe17.lga...
> Now I am not an IT professional mind you but I used test files with the
scr
> extension as "SCRipt" files. The operating system likes to grab them and
> just do as the text inside instructs it. I use OE and it would reject such
> files if I set it up to but being a curious fellow, I like to see what I
am
> missing.
>
> K3PID

Following quote is lifted from Symantec [Norton Antivirus], edited only for
brevity:

< quote>
Symantec Security Response encourages all users and administrators to adhere
to the following basic security "best practices":

* Configure your email server to block or remove email that contains
file attachments that are commonly used to spread viruses, such as .vbs,
.bat, .exe, .pif and .scr files.
<end quote>

If you wonder what you're missing in scr files, you could be a mite too
curious.

2011. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 06:06:56 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <frvk0298o0695hp1jp4snf8i49ei97c2gq@4ax.com>
Source record: 63873

On Sun, 5 Mar 2006 03:29:51 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>I have just had several glasses of Australian Zonte's Footstep wine.
>I can recommend it. Its name can be traced back to a marsupial which
>replaced the dinosaurs.

That's really well-aged wine.

>
>Transmission lines, which even the dinosaurs knew nothing about, are
>associated with losses of one sort and another. But there is one sort
>of loss which is never mentioned in discussions on this newsgroup. It
>is reflection loss.

Never mentioned??? You must have tipped too many and nodded off.

[snipped]

2012. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 06:53:02 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <8WvOf.430$wp.130@fed1read12>
Source record: 63874

"jawod" <jawod@fuse.net> wrote in message
news:54f81$440893e2$42a1bfc2$25389@FUSE.NET...
> I'm getting ready to mount a dipole between two trees in my backyard.
> Both are large sycamores and I plan to have the dipole about 60 feet up
> (max).
>
> In an ARRL publication, there is a description of using a bow and arrow
> to get over the branch desired.
>
> This is the method I guess I'll try (can't climb these trees).
> Once I have the nylon fishing line over, I'll need to hoist up a nylon
> rope attached to a pulley attached to the antenna itself (I mean, of
> course, the support line attached to insulator).
>
> I can't figure a way to hoist all this up without, say, 120 feet of
> nylon rope in an inverted U plus the weighted support line attached to
> the antenna. Yes, I can use a slip knot but I still end up having 60
> feet of rope draped from the tree. Should I find a way to cut the nylon
> rope near the branch? Just tie up the hanging rope?
>
> It seems necessary to "waste" as much as 60 feet of rope in either side.
> If I support the center insulator, then double that.
>
> Is there a better way?
>
> John
>
> PS, Sorry, I couldn't find a way to insert something with imaginary
> numbers (hi)

I'm going to suggest you "waste" not only the sixty feet of rope at each
end, but an additional sixty feet at each end. (But, not being acquainted
with sycamore trees, I don't know how dense their branches are, so
this idea may not always work.)

Create a closed loop of rope, so you can raise and lower the thing at
will with total, personal control. You will someday need to lower
the antenna and growth in the tree may snag the insulator or the
antenna, so you could tug down on a rope, and not have to tug down
on your antenna.

I am curious about the pulley. Hereabouts (Southern California) we
do almost nothing with trees.

John

(Ah, two Johns -- no waiting.)

2013. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 10:48:12 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141555692.734834.324400@t39g2000cwt.googlegroups.com>
Source record: 63875

Perhaps he's lost in his reflections.

2014. Re: Twinlead antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 11:30:37 UTC
From: "Edward A. Feustel" <efeustel@direcway.com>
Message-ID: <S-SdnSs90eJ0VpfZRVn-iQ@giganews.com>
Source record: 63726

"Paul R. Stoetzer" <stoetze4@msu.edu> wrote in message
news:duds2l$j75$1@news.msu.edu...
>I needed an indoor HF antenna recently and had a 40 ft roll of Radio Shack
>twinlead. I cut down the middle about 16.5 feet, hung one end at one side
>of the room and the other end at the other side of the room and fed it into
>the balanced line input on my tuner. It tunes easily. I have no ground set
>up, so I ran another 16.5 foot wire from the ground port. Making contacts
>is a bit of a struggle, from my QTH in Michigan I've worked Nevada and
>Arizona on PSK and during the DX contest today in limited operation near
>sunset I worked Barbados and the Dominican Republic with about 50W
>(probably a bit of a high level of RF radiation, I know). The question I
>have is what the downside of this is. I have seen many websites that show
>various antennas fed with twinlead, but I've never seen my approach (the
>twinlead used for both the antenna and feedline). Since I got this roll of
>twinlead on clearance from Radio Shack for 38 cents, this is a cheap
>antenna indeed.
>
> 73,
> Paul, N8HM
Paul,
Should work fine on the higher frequencies. But it may have limited utility
on 160, 80, and 40
since it is only about 10 meters long. I assume your contacts were on 20
meters. where your
balanced line might be near 72 ohms.

If it is truly balanced you should not need a ground. Assuming
that the high RF in your room does not bother your rig/setup and assuming
that no one gets burned
by coming in contact with the antenna while you are operating, you should be
ok.

Ed, N5EI

2015. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 12:25:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <RMAOf.65891$PL5.47402@newssvr11.news.prodigy.com>
Source record: 63727

Sal M. Onella wrote:
> Hereabouts (Southern California) we do almost nothing with trees.
> John

I hear y'all give 'em lots of hugs. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2016. Re: Twinlead antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 14:34:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OFCOf.39682$F_3.16547@newssvr29.news.prodigy.net>
Source record: 63728

Paul R. Stoetzer wrote:
> I have
> seen many websites that show various antennas fed with twinlead, but
> I've never seen my approach (the twinlead used for both the antenna and
> feedline).

Balanis illustrates exactly that idea on page 18 of
"Antenna Theory, Analysis and Design", 2nd edition.
It is a very old idea. 50+ years ago, when I was a
Novice, it was standard practice to tie a knot in zip
cord 1/4WL from the end, unzip the cord down to the
knot, use the unzipped part for the 1/2WL antenna,
and use the rest for balanced feedline. It worked
like a charm in spite of the feedline losses.
--
73, Cecil http://www.qsl.net/w5dxp

2017. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 14:35:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <PGCOf.39683$F_3.13815@newssvr29.news.prodigy.net>
Source record: 63729

Dan Richardson <k6mhe<at>adelphia wrote:
> Including Reg's factoids.

Hey Danny, I think you need to reset your clock.
--
73, Cecil http://www.qsl.net/w5dxp

2018. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 14:41:57 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <sltl02prpli5vpposrfr74lpkuaevv9u9b@4ax.com>
Source record: 63732

On Sat, 4 Mar 2006 22:59:52 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Nobody's books or publications are bibles.
>
>Not even Terman's or B.L & E's.

Indeed, Reg.
It's always struck me as rather annoying that there are more errors in books on electronics than in any other published subject _bar none_ to my knowledge. I can think of no text book that is entirely error-free with the _possible_ exception of Art of Electronics.
Most of the errors in radio & electronics tomes are related to ambiguous authoring, but there is a regrettably large number of outright errors (examples calculations or fundamental misunderstanding on the part of the writer) that are utterly poisonous snake oil to the unwitting and unguided student. Chris Bowick's 'RF Circuit Design' springs to mind here!

2019. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 14:44:11 UTC
From: Paul Burridge <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk>
Message-ID: <98ul021kc15f5fgk3uheuc2q350rcfnsg4@4ax.com>
Source record: 63733
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

On 3 Mar 2006 17:00:57 -0800, "sananda@hotmail.com"
<sananda--@hotmail.com> wrote:

>Concord Police Department Officer Ron Turner is a fucken dirty black
>pig cop
[...]

Maybe. But I dare say his English is a darn sight better than yours!

2020. Current in Loading Coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 15:01:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%2DOf.39694$F_3.36050@newssvr29.news.prodigy.net>
Source record: 63730

A loading coil thread is climaxing over on qrz.com. I have used EZNEC to generate a graphic which shows a 3/4WL vertical and a similar 1/2WL vertical with a ~1/4WL loading coil. The loading coil is a wire helical coil containing (surprise) roughly 1/4WL of wire. The coil does a good (not perfect) job of replacing 1/4WL of wire. Many things can be gathered from observation of the current reported by EZNEC for the two antennas. The coil occupies roughly the same number of degrees of the antenna as the wire it replaces. The current at the top and bottom of the coil is roughly the same as the current at the two ends of the wire it replaces. Is the coil an exact replacement? Of course not.

EZNEC says the current flowing into the bottom of the coil is 0.1168 amps and the current flowing out of the top of the coil is 0.748 amps. Say what? How can more current flow out of a coil than is flowing in? Aren't those two currents supposed to be equal? What gives?

Some gurus have mistakenly treated the net current on a standing wave antenna as a lumped circuit current. The lumped circuit analysis falls apart in the presence of standing waves and the myth of equal net current in and out of a coil has been created as a result. Hint: A typical mobile antenna is a standing wave antenna and the net standing wave current reported by EZNEC doesn't much flow at all. It just, well, stands there like good little standing waves are supposed to. That standing wave pattern is illustrated in the graphic at:

http://www.qsl.net/w5dxp/qrzgif35.gif

The two EZNEC files used to generate that graphic are available from me upon request.
--
73, Cecil http://www.qsl.net/w5dxp

2021. 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 15:20:20 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <klDOf.29196$2c4.4569@dukeread11>
Source record: 63731

Can someone tell me where I can find the housings for a 1n21 crystal
detector diode so I can hook it to some coax and a directional coupler?
I can't seem to fine one anywhere

--
Chris W
KE5GIX

Gift Giving Made Easy
Get the gifts you want &
give the gifts they want
One stop wish list for any gift,
from anywhere, for any occasion!
http://thewishzone.com

2022. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 16:13:33 UTC
From: Dan Richardson <k6mhe>
Message-ID: <eg3m025vj3aigi0h8g80voqap7h1tnap3d@4ax.com>
Source record: 63857

On Sat, 4 Mar 2006 22:59:52 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Nobody's books or publications are bibles.
>
>Not even Terman's or B.L & E's.
>----
>Reg
>
Including Reg's factoids.

Danny

2023. Where can I get a new telescoping Antenna for a Grundig FR-200

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 16:18:01 UTC
From: "R Black"
Message-ID: <120m3dj1dc9eh8e@corp.supernews.com>
Source record: 63734

I have a Grundig FR-200 and it works great. My kids, however broke the telescoping antenna, and I would like to get a new one.

Does anyone know where I can purchase a new antenna? I did a web search and found no references to spare parts.

Thanks

Chip
kf4wbk

2024. Re: Where can I get a new telescoping Antenna for a Grundig FR-200

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 16:20:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <TcEOf.39709$F_3.37407@newssvr29.news.prodigy.net>
Source record: 63735

R Black wrote:
> Does anyone know where I can purchase a new antenna? I did a web search
> and found no references to spare parts.

Some Rat Shack stores carry an assortment of replacements.
--
73, Cecil http://www.qsl.net/w5dxp

2025. SMA Cables

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 17:58:14 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <WEFOf.57210$Fw6.24840@tornado.tampabay.rr.com>
Source record: 63736

Anybody know where I can purchase custom cables (3', 6', 12', 25') with a male SMA on 1 end to plug into a HT and a PL-259 on the other end? Thanks in advance.

Cordially,
west

2026. Re: Where can I get a new telescoping Antenna for a Grundig FR-200

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 18:43:20 UTC
From: RST Engineering <jim@rstengineering.com>
Message-ID: <e71dc$440b3141$42512e75$28816@DIALUPUSA.NET>
Source record: 63737

Mouser Electronics (www.mouser.com) has half a dozen or so generic
replacement telescopers.

Jim

"R Black" <racblack@NOSPAMinmtrex..XXXnet> wrote in message
news:120m3dj1dc9eh8e@corp.supernews.com...
>I have a Grundig FR-200 and it works great. My kids, however broke the
> telescoping antenna, and I would like to get a new one.
>
> Does anyone know where I can purchase a new antenna? I did a web search
> and found no references to spare parts.
>
>
> Thanks
>
> Chip
> kf4wbk

2027. Re: Current in Loading Coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 18:45:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <jlGOf.27199$_S7.23061@newssvr14.news.prodigy.com>
Source record: 63738

Cecil Moore wrote:
> Is the coil an exact replacement? Of course not.

Just got an email that prompted me to expand this statement.
The worst thing about replacing a piece of wire antenna with
a coil is of course, the wire radiates well and the coil
radiates hardly at all. But that's a compromise we are forced
to live with for 75m mobile antennas.
--
73, Cecil http://www.qsl.net/w5dxp

2028. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 18:52:07 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns977D6E8EABAD6doldridgsprintca@64.59.135.159>
Source record: 63739

Cecil Moore <mycall@arrl.net> wrote in news:eOLNf.62289$PL5.32727
@newssvr11.news.prodigy.com:

> Roy Lewallen wrote:
>> A ground plane is a poor model of how currents flow along a car body.
>
> If the car body was 1/2WL in the air, would the antenna
> be more efficient?

Probably not. But it might be a BITCH to match!

--
Dave Oldridge+
ICQ 1800667

2029. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 19:13:41 UTC
From: Me <Me@shadow.orgs>
Message-ID: <Me-150190.10160705032006@netnews.worldnet.att.net>
Source record: 63740

In article <aulOf.21209$d9.17844@read2.cgocable.net>,
The Visitor <ksjhdsdfssjhfk@shduiysdfsrewh.com> wrote:

> Me wrote:
> 7.6Kw Pulsed Xband Radars have an AVERAGE
> > Power of less than 20 watts.
>
> I know it works in pulses and it is the pulse you should look out for.
> Like a microwave oven , it can induce voltages in pieces of metal, high
> enough to cause sparks. What would that do to a person with a pacemaker?

No, absolutly NOT, Microwave Ovens are NOT pusled, they are CW, and
continious. It is AVERAGE Power that fries you, not Peak Pulse Power.
See, this is what you seem not to understand, about the technology that
is being discussed. You don't seem to have a grasp of how the technolgy
works.

>
> I only know the power rating.
> I am not sure arcing incidents are that rare as I have met a couple of
> people who claim to have seen it happen.
>
and I have meet a lot of people that claim to have seen and been
kidnapped by aliens, too......

> If a hammer drops on your foot and then rests there for 20 minutes, is
> it the pulse or the average force to look out for.

not analogous, at all, and just shows that yoiu don't undertand the
technology that you talking about.

>
> My radar...
>
> Peak Power Output: 7.5 KW nominal, 6.0 KW minimum
>
> Output Frequency: 9375 Mhz (X-Band)

Most likely using a 2J42 Magnitron or equivilent....

>
> I think it does 160 pulses per second.

that seems a bit low, should be in the 500 to 750 range, but ok..

and the Pulse Width, which you don't cite, is the determining factor
in calculating the Average Power of the RF Energy emitted from the

device. Typical Pulse Widths would be in the .1 to 1 microsecond range
for this type of radar. So lets take 1 microsecond.
1 * 160 = 160 microseconds total ON time out of 1000000 microsends/second
160.0/1000000 *7500 Watts Peak Pulse Power = 1.2 Watts Average Power

Now understand that RF Energy is nonIonizing radiation and therefore
interacts with biologics as HEAT. Now just how much heat will be
transfered to you from a 1.2 Watt light bulb held in your hand,
assuming that you get 100% capture of that power into your hand,
and considering that if your standing out in front of the antenna
even at one foot, the Inverse Square Law still applies?

>
>
>
> You would be willing to take the full brunt of that one foot away? I
> will be back at the airport this afternoon and ask for someone to hold
> thier head up to the radome. I never went to radar school.

that is obvious....

>
> I'll take your word for it, but I won't volunteer!

Me

2030. Re: SMA Cables

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 19:26:43 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <TXGOf.11784$Cp4.8862@edtnps90>
Source record: 63741

Try: http://www.pasternack.com.

Regards,

Frank

"west" <westley@tampabay.rr.com> wrote in message
news:WEFOf.57210$Fw6.24840@tornado.tampabay.rr.com...
> Anybody know where I can purchase custom cables (3', 6', 12', 25') with
> a
> male SMA on 1 end to plug into a HT and a PL-259 on the other end? Thanks
> in
> advance.
>
> Cordially,
> west
>
>

2031. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 19:32:08 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <t4fm02hv0uhm24kn7tam902v15g08pkc4q@4ax.com>
Source record: 63742

On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:

>Can someone tell me where I can find the housings for a 1n21 crystal
>detector diode so I can hook it to some coax and a directional coupler?
>I can't seem to fine one anywhere

Try googling with:
1n21 crystal mount

73's
Richard Clark, KB7QHC

2032. Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 19:47:28 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duff8gear1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63743

Different currents at each end of a coil are easily explained.

A coil has capacitance to its surroundings distributed along its length. And current flows from it radially.

Every coil has length. Both L and C are distributed. Therefore the coil behaves as a transmission line. There are standing waves. Current and voltage both vary with length.

The longer the line the greater the variation.

The line has phase-shift, Zo and attenuation resulting from wire loss resistance and radiation resistance.

The line can have a resonant length. It then becomes a short antenna.

The whole business can be mathematically modelled.

Reg, G4FGQ.

2033. Re: SMA Cables

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 19:52:36 UTC
From: artie <artie.m@gNOSPAMmail.com>
Message-ID: <0503200611523628 23%artie.m@gNOSPAMmail.com>
Source record: 63744

In article <WEFOf.57210$Fw6.24840@tornado.tampabay.rr.com>, west
<westley@tampabay.rr.com> wrote:

> Anybody know where I can purchase custom cables (3', 6', 12', 25') with a
> male SMA on 1 end to plug into a HT and a PL-259 on the other end? Thanks in
> advance.
>
> Cordially,
> west
>
>

You can pick up SMA to SMA cables on eBay -- use one of those, and an
adapter.

--
Namaste--

2034. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 20:03:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6uHOf.37270$Jd.36960@newssvr25.news.prodigy.net>
Source record: 63745

Reg Edwards wrote:
> The whole business can be mathematically modelled.

The point is that it cannot successfully be modeled
with the lumped circuit model where the current is
constant everywhere in the circuit. What would
Kirchhoff have thought about a coil with 0.1 amp
at the bottom and 0.7 amps at the top? It certainly
doesn't mean that 0.6 amps is flowing sideways. All
it means is that the relative phase of the forward
current and reflected current changes through the
coil and therefore the distributed network model
needs to be used.
--
73, Cecil http://www.qsl.net/w5dxp

2035. measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 20:04:46 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <hLedncOeu6382ZbZnZ2dnUVZ_sOdnZ2d@comcast.com>
Source record: 63746

All,

I am trying to measure impedance through a balun, or more accurately a 1:1 in line "transformer". For test purposes the transformer is two windings of 10 turns each on a toroid. The winding are tightly wound on opposite sides. The material is #43, the toroid is 3/4 inch OD.

If I drive one side of the transformer with one milliwatt at 4 MHz and terminate the other side into 50 Ohms, and then measure the input voltage and the output voltage. The output voltage significantly less then the input voltage, about 1/3.

The second measurement that does not support my understanding is: If I connect the transformer up to an 8450A through appropriate couplers, and then short the output the 8405A does not show a 180 degree phase shift between 'open' and 'shorted'. If this measurement is made without the transformer then the results are as expected.

This is obviously something with the transformer. I would like to construct a simple 1:1 in line transformer good from 3 to 30 MHz and 100 watts. What core size, material, and windings are a good starting point for this?

Thanks - Dan - kb0qil

2036. Re: measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 20:25:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OOHOf.37271$Jd.32606@newssvr25.news.prodigy.net>
Source record: 63747

dansawyeror wrote:
> I am trying to measure impedance through a balun, or more accurately a
> 1:1 in line "transformer". For test purposes the transformer is two
> windings of 10 turns each on a toroid. The winding are tightly wound on
> opposite sides. The material is #43, the toroid is 3/4 inch OD.

For 4 MHz, I would use #61 material and
bifilar windings.
--
73, Cecil http://www.qsl.net/w5dxp

2037. Re: Current in Loading Coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 20:26:57 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <1uhm02pe8vpko9rsab5tnaoblesp4prnub@4ax.com>
Source record: 63748

Okay, I will take the bait and demonstrate my ignorance:
RE:
EZNEC says the current flowing into the bottom of the coil
>is 0.1168 amps and the current flowing out of the top of
>the coil is 0.748 amps. Say what? How can more current
>flow out of a coil than is flowing in? Aren't those two
>currents supposed to be equal? What gives?

I thought the power was constant, not the current. If that is the case, then IE must be constant and therefore the current must go up where the volts go down.

I would appreciate the EZNEC copies because I learn easiest by examples and I am interested in how you put the comparison together.

John Ferrell W8CCW

2038. Re: measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 22:11:57 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <9dom02tf4f7vo2ldpf1pf05c94udfs7q0k@4ax.com>
Source record: 63749

On Sun, 05 Mar 2006 12:04:46 -0800, dansawyeror
<dansawyeror@comcast.net> wrote:

>All,
>
>I am trying to measure impedance through a balun, or more accurately a 1:1 in
>line "transformer". For test purposes the transformer is two windings of 10
>turns each on a toroid. The winding are tightly wound on opposite sides. The
>material is #43, the toroid is 3/4 inch OD.

The windings should be bifilar, not wound separately.

2039. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 22:23:37 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <9yJOf.29654$2c4.29425@dukeread11>
Source record: 63750

Richard Clark wrote:

>On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:
>
>
>
>>Can someone tell me where I can find the housings for a 1n21 crystal
>>detector diode so I can hook it to some coax and a directional coupler?
>>I can't seem to fine one anywhere
>>
>>
>
>Try googling with:
> 1n21 crystal mount
>
>

A google search for that is giving me some links but still no luck
finding a place I can buy one

--
Chris W
KE5GIX

Gift Giving Made Easy
Get the gifts you want &
give the gifts they want
One stop wish list for any gift,
from anywhere, for any occasion!
http://thewishzone.com

2040. Re: measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 22:31:05 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <JEJOf.13080$dg.5360@clgrps13>
Source record: 63751

Dan, I think #43 is powdered iron, which is fine for high Q inductors, but not very good for broadband transformers. As has been mentioned by others; a ferrite core with bifilar windings should do it. Check out: http://www.oselectronics.com/downloads/Broadband%20Transformers.pdf for more info.

Frank

"dansawyeror" <dansawyeror@comcast.net> wrote in message news:hLedncOeu6382ZbZnZ2dnUVZ_sOdnZ2d@comcast.com...
> All,
>
> I am trying to measure impedance through a balun, or more accurately a 1:1
> in line "transformer". For test purposes the transformer is two windings
> of 10 turns each on a toroid. The winding are tightly wound on opposite
> sides. The material is #43, the toroid is 3/4 inch OD.
>
> If I drive one side of the transformer with one milliwatt at 4 MHz and
> terminate the other side into 50 Ohms, and then measure the input voltage
> and the output voltage. The output voltage significantly less then the
> input voltage, about 1/3.
>
> The second measurement that does not support my understanding is: If I
> connect the transformer up to an 8450A through appropriate couplers, and
> then short the output the 8405A does not show a 180 degree phase shift
> between 'open' and 'shorted'. If this measurement is made without the
> transformer then the results are as expected.
>
> This is obviously something with the transformer. I would like to
> construct a simple 1:1 in line transformer good from 3 to 30 MHz and 100
> watts. What core size, material, and windings are a good starting point
> for this?
>
> Thanks - Dan - kb0qil
>

2041. Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 22:41:54 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <SOJOf.803471$x96.268170@attbi_s72>
Source record: 63752

I am in the process of constructing a compact loop for 80 meters. The loop is constructed from 3/4 inch copper pipe in the shape of an octagon with a perimeter of 72 feet, and the plane of the loop is vertical. According to the literature, a loop of this type usually has a remotely tuned capacitor in series with the top side of the loop, and the loop is feed at the bottom with a gamma match.

For mechanical stability reasons, I would like to have the tuning capacitor at the bottom of the loop, and feed the loop at the top of the loop. The coax would be constrained to lie in the plane of the loop and would drop vertically from the top of the loop to the ground. What disadvantages, if any, are there to this second method of loop construction?

For more details of my project, see http://tinyurl.com/bwobb

2042. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 22:59:53 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <2gqm021v4ec7c8t5e05dk0auohtnhv1uqu@4ax.com>
Source record: 63753

On Sun, 05 Mar 2006 16:23:37 -0600, Chris W <1qazse4@cox.net> wrote:

>Richard Clark wrote:
>
>>On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:
>>
>>
>>
>>>Can someone tell me where I can find the housings for a 1n21 crystal
>>>detector diode so I can hook it to some coax and a directional coupler?
>>>I can't seem to fine one anywhere
>>>
>>>
>>
>>Try googling with:
>> 1n21 crystal mount
>>
>>
>
>A google search for that is giving me some links but still no luck
>finding a place I can buy one

http://mailgate.supereva.com/misc/misc.industry.electronics.marketplace/msg04490.html
was at the 6th entry.

http://store.americanmicrosemiconductor.com/1n21.html?gclid=CNbBybHzyIMCFTFZDgodfQQv8A
was at the right as a vendor

http://www.advancedsemiconductor.com/diodes/1N/1N.shtml
sells the diodes and a call "could" result in leads

This is a product line that is probably entirely custom design, or
salvage from equipment that is 50 years old.

73's
Richard Clark, KB7QHC

2043. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 23:02:22 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <qerm02hrs2duqvbhlmrla4gkg571ccbdr4@4ax.com>
Source record: 63755

On Sun, 05 Mar 2006 22:41:54 GMT, "John, N9JG"
<john@gotwals.XremoveY.com> wrote:

>What disadvantages, if
>any, are there to this second method of loop construction?

Hi John,

What advantage is there in climbing a ladder to place the loop? Put
it at the bottom too.

73's
Richard Clark, KB7QHC

2044. Re: measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 23:02:38 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <2tqm029ua0ev89mfr3knmpe876hkp98j83@4ax.com>
Source record: 63754

On Sun, 05 Mar 2006 22:31:05 GMT, "Frank" <ve6cb@nospam.telus.net>
wrote:

>Dan, I think #43 is powdered iron, which is fine for high Q inductors, but

Type 43 is a nickel zinc ferrite. Spec sheets indicate it is
principally a suppression material, but usable for broadband
transformers up to 10MHz.

Bifilar winding, and possibly better material are probably the key to
improving the transformer, or alternatively making a common mode
choke.

Owen

--

2045. Re: Errors in Wilfred Caron Smith Chart Book

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-05 23:43:18 UTC
From: SignalFerret <signalferret@verizon.net>
Message-ID: <qIKOf.3813$CT.1998@trnddc04>
Source record: 63756

Out of curiosity, what are some examples of error's in Bowick's book? I've probably passed right by them. Then again, I miss a lot of obvious things. I slept till 1pm on Sept 11, 2001 -- I had no idea what was going on that day.

Robert

"Paul Burridge" <pb@shove.your.spam.up.your.arse.atlanticstar.co.uk> wrote in message news:sltl02prpli5vpposrfr74lpkuaevv9u9b@4ax.com...
> On Sat, 4 Mar 2006 22:59:52 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>
>>Nobody's books or publications are bibles.
>>
>>Not even Terman's or B.L & E's.
>
> Indeed, Reg.
> It's always struck me as rather annoying that there are more errors in
> books on electronics than in any other published subject _bar none_ to
> my knowledge. I can think of no text book that is entirely error-free
> with the _possible_ exception of Art of Electronics.
> Most of the errors in radio & electronics tomes are related to
> ambiguous authoring, but there is a regrettably large number of
> outright errors (examples calculations or fundamental misunderstanding
> on the part of the writer) that are utterly poisonous snake oil to the
> unwitting and unguided student. Chris Bowick's 'RF Circuit Design'
> springs to mind here!

2046. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 00:15:21 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <taLOf.7425$oL.442@attbi_s71>
Source record: 63757

I am not sure what you are recommending - Are you suggesting I make the
plane of the loop horizontal?
-- John

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:qerm02hrs2duqvbhlmrla4gkg571ccbdr4@4ax.com...
[snip]
>
> Hi John,
>
> What advantage is there in climbing a ladder to place the loop? Put
> it at the bottom too.
>
> 73's
> Richard Clark, KB7QHC

2047. Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 00:29:12 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <c4-dnXFHg8_KH5bZnZ2dnUVZ_vmdnZ2d@adelphia.com>
Source record: 63758

Based on another thread a few weeks back in which Horizontal dipoles were being compared to Vertical antennas, and from a little chiding from Roy, W7EL, I decided to do some testing on my own personal versions of the two.

My setup is:

Icom IC-761
Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.

Part one of this experiment is to calibrate the S-meter. I found that trying to calibrate the thing with on-air signals was a nuisance, and probably wouldn't be as accurate, so I used a signal generator.

I started out with a +20 signal, then worked my way down.

+20 start
S9 -18 db
S8 -23 db
S7 -26 db
S6 -29 db
S5 -32 db
S4 -35 db
S3 -37 db
S2 -39 db
S1 -41 db

All in all, I would have to say that the meter tracks very well from S8 to S4, and the only place that wasn't that great was from S9 to S8. But considering the transient nature of the signals we are receiving, I would have to day that the S-meter is of reasonably close accuracy.

With my newly calibrated S-meter I am ready to start looking at what the two different antennas are doing for me. I have a coaxial switch to jump back and forth between the two. My initial impressions are that there are some surprises. The difference in noise levels varies by antenna by band. On some bands the vertical is noisier, and on others it is the OCF dipole. Especially intriguing is that on PSK mode, where I can see several signals at one time, switching between antennas will attenuate some signals, while other signals increase in strength. I think that my vertical works better than I gave it credit for, but If I definitely want *both* antennas.

Next installment will be the band to band comparison of the two antennas with some numbers.

Installment three will be an investigation of that PSK signal strength business.

- 73 de Mike KB3EIA -

2048. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 00:57:02 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <081n025fa3l0tk3ftnb464ga44sia7h7gh@4ax.com>
Source record: 63759

On Sun, 05 Mar 2006 19:29:12 -0500, Mike Coslo
<mremovethiscoslo@adelphia.net> wrote:

>Based on another thread a few weeks back in which Horizontal dipoles
>were being compared to Vertical antennas, and from a little chiding from
>Roy, W7EL, I decided to do some testing on my own personal versions of
>the two.
>

Mike, this sounds interesting.
>
>My setup is:
>
>Icom IC-761
>Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
>Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.
>

Question, does the magnitude of feedline radiation from the OCF
(presumably predominantly vertical) significantly affect qualification
of it as a horizontal antenna?

Another, are the antennas coupled significantly, eg is one within the
near field zone of the other? It is pretty hard to avoid in a
residential block on the low bands, and it will confuse the results
somewhat.

>
>Part one of this experiment is to calibrate the S-meter. I found that
>trying to calibrate the thing with on-air signals was a nuisance, and
>probably wouldn't be as accurate, so I used a signal generator.
>
>I started out with a +20 signal, then worked my way down.
>
>+20 start
>S9 -18 db
>S8 -23 db
>S7 -26 db
>S6 -29 db
>S5 -32 db
>S4 -35 db
>S3 -37 db
>S2 -39 db
>S1 -41 db

Not only is the shape of the scale an issue, but the granularity or resolution, especially with LCD meters, or any meter where there are discrete steps in the meter current (such as where a D/A converter drives the meter movement).

If you want to move beyond S meters, you could try FSM (www.vk1od.net/fsm) and organise some constant carriers at known distances / radiation angles that you could make a series of measurements of and produce summary statistics (median and inter quartile range) for each antenna type.

>
>All in all, I would have to say that the meter tracks very well from S8
>to S4, and the only place that wasn't that great was from S9 to S8. But
>considering the transient nature of the signals we are receiving, I
>would have to day that the S-meter is of reasonably close accuracy.
>
>With my newly calibrated S-meter I am ready to start looking at what the
>two different antennas are doing for me. I have a coaxial switch to jump
>back and forth between the two. My initial impressions are that there
>are some surprises. The difference in noise levels varies by antenna by
>band. On some bands the vertical is noisier, and on others it is the OCF
>dipole. Especially intriguing is that on PSK mode, where I can see
>several signals at one time, switching between antennas will attenuate
>some signals, while other signals increase in strength. I think that my
>vertical works better than I gave it credit for, but If I definitely
>want *both* antennas.

I described a technique for assessing the relative performance of mobile stations by having them transmit known constant carrier, each station space about 200Hz and turning circles in a carpark near each other, and to observe them at typical propagation distances with an audio spectrum analyser, watching the relative strength of the carriers.

Your PSK setup is affording you the same type of comparison, and provides a ready (and recordable) assessment of the relative strength of the stations under the two antenna scenarios. Be great if you could orchestrate stations at known distances as part of an organised test.

Owen
>
>Next installment will be the band to band comparison of the two antennas
>with some numbers.
>
>Installment three will be an investigation of that PSK signal strength
>business.

>
> - 73 de Mike KB3EIA -
--

2049. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 01:05:25 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <pVLOf.509602$qk4.476284@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63760

Cecil,

Interesting.

I am quite familiar with Kirchoff's equation in regard to voltages around a loop and his equation about currents at a node. Did I miss a third equation regarding currents around a loop?

Hint: Kirchoff would not be the slightest bit bothered by this problem.

Reg, as usual, has it completely correct.

73,
Gene
W4SZ

Cecil Moore wrote:
> Reg Edwards wrote:
>
>> The whole business can be mathematically modelled.
>
>
> The point is that it cannot successfully be modeled
> with the lumped circuit model where the current is
> constant everywhere in the circuit. What would
> Kirchhoff have thought about a coil with 0.1 amp
> at the bottom and 0.7 amps at the top? It certainly
> doesn't mean that 0.6 amps is flowing sideways. All
> it means is that the relative phase of the forward
> current and reflected current changes through the
> coil and therefore the distributed network model
> needs to be used.

2050. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 02:16:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <jYMOf.27309$_S7.2614@newssvr14.news.prodigy.com>
Source record: 63761

Gene Fuller wrote:
> I am quite familiar with Kirchoff's equation in regard to voltages
> around a loop and his equation about currents at a node. Did I miss a
> third equation regarding currents around a loop?

Nope, you missed an implication of Kirchhoff's current law.
Unequal currents into and out of a passive black box implies
the existence of a node inside the box.
--
73, Cecil http://www.qsl.net/w5dxp

2051. Re: measuring impedance through a balun ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 02:19:44 UTC
From: dansawyeror <dansawyeror@comcast.net>
Message-ID: <440B9C40.4050509@comcast.net>
Source record: 63762

Wow! It is really great when something simple works. Yes, 6 bifilar windings work really great. Even better the impedance measurements worked as expected.

Now I need to design 2:1 and 4:1 impedance matching transformers for 500 watts. Those are in anticipation of successfully resolving the ground of the antenna system.

Thanks - Dan

Frank wrote:
> Dan, I think #43 is powdered iron, which is fine for high Q inductors, but
> not very good for broadband transformers. As has been mentioned by others;
> a ferrite core with bifilar windings should do it. Check out:
> http://www.oselectronics.com/downloads/Broadband%20Transformers.pdf for more
> info.
>
> Frank
>
>
> "dansawyeror" <dansawyeror@comcast.net> wrote in message
> news:hLedncOeu6382ZbZnZ2dnUVZ_sOdnZ2d@comcast.com...
>
>>All,
>>
>>I am trying to measure impedance through a balun, or more accurately a 1:1
>>in line "transformer". For test purposes the transformer is two windings
>>of 10 turns each on a toroid. The winding are tightly wound on opposite
>>sides. The material is #43, the toroid is 3/4 inch OD.
>>
>>If I drive one side of the transformer with one milliwatt at 4 MHz and
>>terminate the other side into 50 Ohms, and then measure the input voltage
>>and the output voltage. The output voltage significantly less then the
>>input voltage, about 1/3.
>>
>>The second measurement that does not support my understanding is: If I
>>connect the transformer up to an 8450A through appropriate couplers, and
>>then short the output the 8405A does not show a 180 degree phase shift
>>between 'open' and 'shorted'. If this measurement is made without the
>>transformer then the results are as expected.
>>
>>This is obviously something with the transformer. I would like to
>>construct a simple 1:1 in line transformer good from 3 to 30 MHz and 100
>>watts. What core size, material, and windings are a good starting point
>>for this?
>>

>>Thanks - Dan - kb0qil
>>
>
>
>

2052. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 02:26:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <m5NOf.27311$_S7.21732@newssvr14.news.prodigy.com>
Source record: 63763

Reg Edwards wrote:
> The whole business can be mathematically modelled.

IF one uses the correct model. Here's an email I received today.

> Walter Maxwell, W2DU wrote:
>> Hi Cecil, I just today found the (QRZ.com) discussion. I agree
>> with your position 100%. It's as simple as this:
>>
>> If an inductance is in series with a line that has no reflections,
>> the current will be the same at both ends of the inductor.
>>
>> If an inductance is in series with a line that has reflections,
>> the current will NOT be the same at both ends of the inductor.
>>
>> Consequently, circuit analysis will not work when both forward
>> and reflected currents are present in a lumped circuit.
>
>> When reflections are present, a current node and a current loop
>> can appear at separate points on an inductor simultaneously.
>>
>> Walt
--
73, Cecil http://www.qsl.net/w5dxp

2053. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 02:45:52 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <oh8n02ltmh1ioj74tl0jiqhibrve55cn87@4ax.com>
Source record: 63764

On Mon, 06 Mar 2006 00:15:21 GMT, "John, N9JG"
<john@gotwals.XremoveY.com> wrote:

>I am not sure what you are recommending - Are you suggesting I make the
>plane of the loop horizontal?

no

>> What advantage is there in climbing a ladder to place the loop? Put
>> it at the bottom too.
>>
>> 73's
>> Richard Clark, KB7QHC
>

2054. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 03:07:31 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <THNOf.18071$J02.13977@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63765

Cecil,

Your response makes no sense at all. Unequal currents into and out of a passive black box implies charge storage, which generally means capacitance.

You cannot have it any other way, with or without waves or reflections. Conservation of charge is one of the most fundamental laws in nature.

Reg was correct.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I am quite familiar with Kirchoff's equation in regard to voltages
>> around a loop and his equation about currents at a node. Did I miss a
>> third equation regarding currents around a loop?
>
>
> Nope, you missed an implication of Kirchhoff's current law.
> Unequal currents into and out of a passive black box implies
> the existence of a node inside the box.

2055. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 03:20:33 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <T4WdnQ47Vs8dN5bZnZ2dnUVZ_sydnZ2d@adelphia.com>
Source record: 63766

jawod wrote:
> I'm getting ready to mount a dipole between two trees in my backyard.
> Both are large sycamores and I plan to have the dipole about 60 feet up
> (max).
>
> In an ARRL publication, there is a description of using a bow and arrow
> to get over the branch desired.
>
> This is the method I guess I'll try (can't climb these trees).
> Once I have the nylon fishing line over, I'll need to hoist up a nylon
> rope attached to a pulley attached to the antenna itself (I mean, of
> course, the support line attached to insulator).

Time for my Bow and arrow story....

A few years back I decided to do the antenna thing with a bow and arrow. I didn't have any dummy heads, so I took the head off of a practice arrow and wrapped a wad of duct tape around it. I attached a string to the rear of the arrow. The kid saw me leaving the garage with the bow, and decided to tag along. You never know when the Old Man is going to do something funny. As he puts it, "for such a geeky hobby, there are a lot of funny outside moments". We set up under the trees, and started.

The first couple of attempts were pretty lame, with the arrow only going up about 20 feet or so. So I pulled back a good bit more......

Let me tell you, compound bows have more or less two speeds that they impart to the arrow - almost nothing, and holy crap! The arrow heads off, goes waaaayy above the treetops which are around 100 feet in my yard, reaches the end of the string, breaks it, and then continues up a bit more - I guess - because I lost sight of it. I heard something go "thump some where.

It was getting kinda dark at this point, but I wanted to see if we could find it. The neighbors put up with most of my quirks, but I don't think they would appreciate arrows landing in their yard. So the kid and I hopped in the car and drove around the neighborhood a few times. Didn't find the arrow. I felt pretty dum by this time. A few weeks later, the lad found the arrow only about 30 feet from where I had launched it. Go figure. Thank heavens it didn't knock out any of the neighborhood dogs.....

I now use a fishing reel/slingshot launcher. After a while, you can get pretty good with them. About half the time I can get it around the right limb on the first try.

> I can't figure a way to hoist all this up without, say, 120 feet of
> nylon rope in an inverted U plus the weighted support line attached to
> the antenna. Yes, I can use a slip knot but I still end up having 60
> feet of rope draped from the tree. Should I find a way to cut the nylon
> rope near the branch? Just tie up the hanging rope?

Here is what I do. I use nylon rope of the sort used for chalkline. It is very strong, and will stretch nicely if the trees head in the opposite directions in the wind, but will spring back. Be careful that you don't get the poly type - that stuff is nowhere near as strong.

After shooting the weighted line over the desired limb, I tie the nylon line to it, and haul it back. I then attach that line to the antenna end (be sure you nave an insulator on it. Then pull it through. I then leave enough line so that I can pull back through. I have attached one of those horn shaped pieces of metal such as is used for tying off flag lines on a flagpole. Then I simply wrap the line around it. Don't worry about the "waste" because it really isn't waste. How else ya gonna do it?

> It seems necessary to "waste" as much as 60 feet of rope in either side.
> If I support the center insulator, then double that.

Unless the antenna is extremely heavy, the nylon string method I use will hold that antenna pretty straight. I'm using an OCF dipole, and it even has a balun in the middle.

> Is there a better way?

I personally wouldn't bother with pulleys on tree antennas. Something seems to happen that necessitates putting a new (name the part) for that wire antenna fairly often anyhow.

> PS, Sorry, I couldn't find a way to insert something with imaginary
> numbers (hi)

Someone will! ;^)

- 73 de Mike KB3EIA -

2056. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 04:08:58 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440bb5da_3@newsfeed.slurp.net>
Source record: 63767

ORIGINAL MESSAGE:

Reg Edwards wrote:

> I have just had several glasses of Australian Zonte's Footstep wine.
> I can recommend it. Its name can be traced back to a marsupial which
> replaced the dinosaurs.

~~~~~~
I love the Aussie sense of humor. Who else would name a marsupial
"Footstep"?

Bill, W6WRT
~~~~~~

2057. Re: Concord Police Department Officer Ron Turner is a fucken dirty black pig cop

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 04:14:30 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <440bb726_4@newsfeed.slurp.net>
Source record: 63768
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

ORIGINAL MESSAGE:

Paul Burridge wrote:

> Maybe. But I dare say his English is a darn sight better than yours!

~~~~~~
Actually, his $3000 ticket was for hit-and-run on the English Language.
I am pleased to announce the patient is out of intensive care and
expected to make a full recovery.

Bill T.
~~~~~~

2058. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 04:29:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HUOOf.56641$dW3.5185@newssvr21.news.prodigy.com>
Source record: 63769

Gene Fuller wrote:
> Your response makes no sense at all. Unequal currents into and out of a
> passive black box implies charge storage, which generally means
> capacitance.

Boundary condition: There's nothing but wire inside the black box.
--
73, Cecil http://www.qsl.net/w5dxp

2059. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 05:08:01 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120ngtl3drs574@corp.supernews.com>
Source record: 63770

I'm glad to see that my chiding has had a positive result.

Be sure you calibrate your S-meter on each band you'll be using it on, and that the RF gain control and any preamplifier and input attenuator settings are the same as they are when making measurements.

Especially when comparing horizontal and vertical antennas, you'll likely have to make several measurements over a period of time. I've seen many cases where one antenna is a good 20 dB stronger than the other, then over the next minute or so their relative strengths reverse. This is due to polarization rotation of the received signal. On 40 and 80 meters at least, this is common and often has a period of around a minute or more. Really makes me chuckle when I hear "Ok, this is antenna 1. Now this is antenna 2. Which is stronger?"

If neither antenna is consistently stronger than the other, you can put a fixed attenuator is line with one of the antennas and the step attenuator in line with the other to make comparison easier.

People who blindly assume the marks on their S-meters are 6 dB apart should take a good look at your calibration results.

Roy Lewallen, W7EL

Mike Coslo wrote:
> Based on another thread a few weeks back in which Horizontal dipoles
> were being compared to Vertical antennas, and from a little chiding from
> Roy, W7EL, I decided to do some testing on my own personal versions of
> the two.
>
>
> My setup is:
>
> Icom IC-761
> Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
> Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.
>
>
> Part one of this experiment is to calibrate the S-meter. I found that
> trying to calibrate the thing with on-air signals was a nuisance, and
> probably wouldn't be as accurate, so I used a signal generator.
>
> I started out with a +20 signal, then worked my way down.
>
> +20 start
> S9 -18 db

> S8 -23 db
> S7 -26 db
> S6 -29 db
> S5 -32 db
> S4 -35 db
> S3 -37 db
> S2 -39 db
> S1 -41 db
>
> All in all, I would have to say that the meter tracks very well from S8
> to S4, and the only place that wasn't that great was from S9 to S8. But
> considering the transient nature of the signals we are receiving, I
> would have to day that the S-meter is of reasonably close accuracy.
>
> With my newly calibrated S-meter I am ready to start looking at what the
> two different antennas are doing for me. I have a coaxial switch to jump
> back and forth between the two. My initial impressions are that there
> are some surprises. The difference in noise levels varies by antenna by
> band. On some bands the vertical is noisier, and on others it is the OCF
> dipole. Especially intriguing is that on PSK mode, where I can see
> several signals at one time, switching between antennas will attenuate
> some signals, while other signals increase in strength. I think that my
> vertical works better than I gave it credit for, but If I definitely
> want *both* antennas.
>
> Next installment will be the band to band comparison of the two antennas
> with some numbers.
>
> Installment three will be an investigation of that PSK signal strength
> business.
>
> - 73 de Mike KB3EIA -

2060. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 05:24:40 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <bmhn021d9ln2gfbl85l32p9v81mn7li9f2@4ax.com>
Source record: 63771

On Mon, 06 Mar 2006 00:15:21 GMT, "John, N9JG"
<john@gotwals.XremoveY.com> wrote:

>I am not sure what you are recommending - Are you suggesting I make the
>plane of the loop horizontal?

Hi John,

A second loop driven by the coax placed in the same plane as your
larger one - and at the bottom. No reason to be fooling around at the
top of the arc of the big loop. No reason to break the big loop to
drive it.

73's
Richard Clark, KB7QHC

2061. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 05:33:34 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <DRPOf.479$wp.389@fed1read12>
Source record: 63772

"Cecil Moore" <mycall@arrl.net> wrote in message
news:RMAOf.65891$PL5.47402@newssvr11.news.prodigy.com...
> Sal M. Onella wrote:
> > Hereabouts (Southern California) we do almost nothing with trees.
> > John
>
> I hear y'all give 'em lots of hugs. :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

Hey, good one! Nice laugh, here.

I'm not one of "Them," however. I believe that trees are a crop, like so
many
useful plants. I mean, you never hear protesters wailing, "Save the lima
beans."

Now, I think I'll go put an antenna up in a tree -- just to do it.

73,
John
KD6VKW

2062. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 07:28:51 UTC
From: richardharrison@webtv.net
Message-ID: <21271-440BE4B3-805@storefull-3254.bay.webtv.net>
Source record: 63773

Gene Fuller weote:
"Conservation of charge is one of the most fundamental laws of nature."

Unequal currents into and out of a passive black box are very simple to produce. Suppose the black box contains a simple transformer with a ratio other than one to one? The power can be constant but the voltage and current must be different on input and output. R-F is a-c, not d-c.

Best regards, Richard Harrison, KB5WZI

2063. Re: radar and health ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 07:42:16 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1141627735.259977.128710@i39g2000cwa.googlegroups.com>
Source record: 63774

Anyone that was involved with the Nike Hercules missile system in the late Fifties and through the early Seventies was around high powered pulse radar. It was deployed around major metropolitan areas in the States and other places around the globe.

All the tracking stuff was short pulse "X" band and maybe a couple hundred watts average.

But the big stuff was the acquistion or search radar that was "L" band. The one I worked with in Korea was maybe 5 or 6 megawatts peak and 4 or 5 kw average on the "L" band.

Some Stateside sites had the big G.E. "L" band job that was fairly long pulse and put out 10 megawatts peak and 18-20 kw average. I was real pleased that it had a rack mounted Bird wattmeter and I was impressed to see a solid 18-20 kw average power running through the waveguide to the antenna.

The range radar was Ku band (15-17 kmc) (TRR to you Nike guys) and one of the old timers I worked with told me that if you directed the antenna towards an individual, he would feel the heat. And I'm sure that's true. We're all familiar with microwave cooking.

John

2064. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 08:34:06 UTC
From: richardharrison@webtv.net
Message-ID: <27174-440BF3FE-883@storefull-3257.bay.webtv.net>
Source record: 63775

Reg, G4FGQ wrote:
"The most important parameter is not SWR but the reflection coefficient, Gamma."

My age is about the same as Reg`s. I have 4 children and 6 grandchildren, and am a veteran of WW-2, but doubt that adds to my credibility. Neither does the beer I had with dinner add authority to what I write. I have a degree in Electrical Engineering, but Americans and probably Brits too view this credential with suspicion. It did open the door to good jobs.

Reg expresses disdain for "bibles" such as Terman or Kraus but their writings have endured the test of time and are proved by countless experiments.

On page 99 of Terman`s 1955 edition of "Electronic and Radio Engineering" (my textbook was an earlier edition) is found the formula to convert the reflection coefficient into SWR or vice versa. These two parameters are innexorably locked together by formulas (4-22a) and (4-22b).

There really is no need to rename the ubiquituos SWR meter as Reg has recommended. This really requires no comment as it isn`t about to happen.

Best regards, Richard Harrison, KB5WZI

2065. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 09:10:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120nv3gt1f8gi3a@corp.supernews.com>
Source record: 63776

Richard Harrison wrote:
> Gene Fuller weote:
> "Conservation of charge is one of the most fundamental laws of nature."
>
> Unequal currents into and out of a passive black box are very simple to
> produce. Suppose the black box contains a simple transformer with a
> ratio other than one to one? The power can be constant but the voltage
> and current must be different on input and output. R-F is a-c, not d-c.
>
> Best regards, Richard Harrison, KB5WZI

Now explain how you'd do it with a box having only two terminals -- and assuming the box is very small compared to a wavelength.

Roy Lew

2066. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 09:13:21 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <e1vn0253amrgt5r64iuj5ug02u06pptqo8@4ax.com>
Source record: 63777

On Mon, 6 Mar 2006 02:34:06 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>On page 99 of Terman`s 1955 edition of "Electronic and Radio >Engineering" (my textbook was an earlier edition) is found the formula >to convert the reflection coefficient into SWR or vice versa. These two >parameters are innexorably locked together by formulas (4-22a) and >(4-22b).

Richard, formula 4-22b calculates the magnitude of the reflection coefficient from SWR. It is not possible to calculate the reflection coefficient (as you say) in the general sense since you lack the phase information.

Owen
--

2067. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 10:27:58 UTC
From: Roger D Johnson <n1rj~@adelphia.net>
Message-ID: <440C0EAE.7070204@adelphia.net>
Source record: 63778

Mike Coslo wrote:

> I have attached one of those horn shaped pieces of metal
> such as is used for tying off flag lines on a flagpole.

It's called a "cleat"

73, Roger (old Coastie)

--
Remove tilde (~) to reply

Remember the USS Liberty (AGTR-5)
http://ussliberty.org/

2068. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 10:28:20 UTC
From: Roger D Johnson <n1rj~@adelphia.net>
Message-ID: <440C0EC4.3070907@adelphia.net>
Source record: 63779

Mike Coslo wrote:

> I have attached one of those horn shaped pieces of metal
> such as is used for tying off flag lines on a flagpole.

It's called a "cleat"

73, Roger (old Coastie)

--
Remove tilde (~) to reply

Remember the USS Liberty (AGTR-5)
http://ussliberty.org/

2069. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 10:49:53 UTC
From: richardharrison@webtv.net
Message-ID: <16154-440C13D1-846@storefull-3256.bay.webtv.net>
Source record: 63780

Owen Duffy wrote:
"Richard, formula 4-22b calculates the magnitude of the reflection coefficient from SWR, it is not possible to calculate the reflection coefficient (as you say) in the general case since you lack phase information."

Phase information is not needed. It is true that the reflection coefficient is a vector ratio of the reflected voltage to the incident voltage at the load but this does not affect conversion of the reflection coefficient to the SWR.

Reactance at the load has the same effect as adding a same-impedance line (of particular length) between the generator and load. This only shifts the SWR pattern on the line, but in a practical line has no effect on the minima and maxima on the line.

SWR is simply the ratio of the maximmum amplitude to the minimum amplitude of voltage (or current) on the line in a particular region of the line. A maximum is displaced by 1/4-wave from a minimum.

Phase information is irrelevant to conversion between reflection coefficient and SWR. That`s why Terman didn`t include it.

Best regards, Richard Harrison, KB5WZI

2070. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 11:45:28 UTC
From: richardharrison@webtv.net
Message-ID: <16154-440C20D8-847@storefull-3256.bay.webtv.net>
Source record: 63781

Roy Lewallen, W7EL wrote:
"Now explain how you`d do it with a box having only two terminals--"

I`ll give the mathematician`s answer: "It`s of no interest. It`s already been solved." Cecil said he would put a coil in the box. I agree. Retardation between incident and reflected waves in each direction would in most cases cause a current difference between the two ends of the coil. Unlike the usual transmission line, the wire is coiled to get reactance into a small space. The effect is the same in that phase shift is distributed along the length of the wire. There is just more of it and and the intervals between maxima and minima are short. Impedance and therefore voltage along the vire is a function of site along the wire. There will be a standing wave pattern throughout the coil.

Best regards, Richard Harrison, KB5WZI

2071. Re: NBFM transceiver @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 12:18:18 UTC
From: mazerom <romulo.maggay@wherewoof.com>
Message-ID: <1141647498.502467.98340@p10g2000cwp.googlegroups.com>
Source record: 63782

thanks !

2072. does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 12:26:05 UTC
From: mazerom <romulo.maggay@wherewoof.com>
Message-ID: <1141647965.814664.310580@i39g2000cwa.googlegroups.com>
Source record: 63783

the doppler shift is fundamentally a tone frequency brought about by a continuous wave source moving in and out. is it possible to have reliable doppler shift when our source is spread spectrum or say some form of digital modulation?

2073. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 13:20:15 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <9lbo02lvgg4bphbri9bjts585fjhe58kd4@4ax.com>
Source record: 63784

On 6 Mar 2006 04:26:05 -0800, "mazerom" <romulo.maggay@wherewoof.com>
wrote:

>the doppler shift is fundamentally a tone frequency brought about by a
>continuous wave source moving in and out. is it possible to have
>reliable doppler shift when our source is spread spectrum or say some
>form of digital modulation?

Yes

2074. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 13:25:39 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <nLWOf.597881$084.399752@attbi_s22>
Source record: 63785

Well, my problem is in deterring the antecedent for the "it" in your
suggestion. Are you recommending that both the tuning capacitor and the
feedpoint should be at the bottom of the loop? Please enlighten me.

Thanks, John

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:oh8n02ltmh1ioj74tl0jiqhibrve55cn87@4ax.com...
> On Mon, 06 Mar 2006 00:15:21 GMT, "John, N9JG"
> <john@gotwals.XremoveY.com> wrote:
>
>>I am not sure what you are recommending - Are you suggesting I make the
>>plane of the loop horizontal?
>
> no
>
>>> What advantage is there in climbing a ladder to place the loop? Put
>>> it at the bottom too.
>>>
>>> 73's
>>> Richard Clark, KB7QHC
>>

2075. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 13:27:19 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <XMWOf.597892$084.520438@attbi_s22>
Source record: 63786

Now I understand your suggestion. Reg also recommends this method of feeding, but the mechanics of mounting the second loop concerns me.

"Richard Clark" <kb7qhc@comcast.net> wrote in message news:bmhn021d9ln2gfbl85l32p9v81mn7li9f2@4ax.com...
> On Mon, 06 Mar 2006 00:15:21 GMT, "John, N9JG"
> <john@gotwals.XremoveY.com> wrote:
>
>>I am not sure what you are recommending - Are you suggesting I make the
>>plane of the loop horizontal?
>
> Hi John,
>
> A second loop driven by the coax placed in the same plane as your
> larger one - and at the bottom. No reason to be fooling around at the
> top of the arc of the big loop. No reason to break the big loop to
> drive it.
>
> 73's
> Richard Clark, KB7QHC

2076. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 13:39:33 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duhe2l$1ar$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63787

"Richard Harrison" wrote
> On page 99 of Terman`s 1955 edition of "Electronic and Radio
> Engineering" (my textbook was an earlier edition) is found the
formula
> to convert the reflection coefficient into SWR or vice versa. These
two
> parameters are innexorably locked together by formulas (4-22a) and
> (4-22b).

==========

Richard, I'm afraid your worship of Terman has let you down.

The two parameters are NOT inexorably locked together.

SWR can be calculated from the Reflection Coefficient. But half of
the information is then lost and gone for ever.

And so, NOT vice-versa!

Reg.

2077. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 13:53:27 UTC
From: mazerom <romulo.maggay@wherewoof.com>
Message-ID: <1141653207.710797.161020@e56g2000cwe.googlegroups.com>
Source record: 63788

Wes Stewart wrote:
> On 6 Mar 2006 04:26:05 -0800, "mazerom" <romulo.maggay@wherewoof.com>
> wrote:
>
> >the doppler shift is fundamentally a tone frequency brought about by a
> >continuous wave source moving in and out. is it possible to have
> >reliable doppler shift when our source is spread spectrum or say some
> >form of digital modulation?
>
> Yes

2078. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 14:09:02 UTC
From: mazerom <romulo.maggay@wherewoof.com>
Message-ID: <1141654142.207274.52860@j52g2000cwj.googlegroups.com>
Source record: 63789

just wanna confirm.
u were saying we can still get a reliable doppler shift from a
modulated signal be it analog or digital?
thank u so much

2079. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 14:17:42 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <awXOf.19484$J02.12053@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63790

Richard,

After that response all I can say is, this newsgroup is sure good for
entertainment.

73,
Gene
W4SZ

Richard Harrison wrote:
> Roy Lewallen, W7EL wrote:
> "Now explain how you`d do it with a box having only two terminals--"
>
> I`ll give the mathematician`s answer: "It`s of no interest. It`s already
> been solved." Cecil said he would put a coil in the box. I agree.
> Retardation between incident and reflected waves in each direction would
> in most cases cause a current difference between the two ends of the
> coil. Unlike the usual transmission line, the wire is coiled to get
> reactance into a small space. The effect is the same in that phase shift
> is distributed along the length of the wire. There is just more of it
> and and the intervals between maxima and minima are short. Impedance and
> therefore voltage along the vire is a function of site along the wire.
> There will be a standing wave pattern throughout the coil.
>
> Best regards, Richard Harrison, KB5WZI
>

2080. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 14:29:54 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <CHXOf.19515$J02.4077@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63791

Cecil,

This is getting more interesting by the moment. Have you now removed some of the well-known physical attributes of wire and transmission lines? Specifically, what happened to the L and C of the wire?

I have no issue with the use of network theory, reflection coefficients, standing waves, or any other commonly used descriptions. However, none of these mathematical conveniences change the fundamental physical laws. If current, and therefore charge, appears to be unbalanced, then there must be charge storage somewhere.

As Reg pointed out, the charge is stored in the capacitance of the coil. No need to invoke any magic incantations about networks and standing waves.

In principle any of these problems can be solved with very basic equations found in any E&M text. In practice it is extremely cumbersome to do so, and that is why all of the network formulations have been developed. Just don't fall into the trap of thinking that any new physical behavior is created by the reflections and standing waves. I believe in previous messages you have referred to that thinking as "seduced by the math models."

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Your response makes no sense at all. Unequal currents into and out of
>> a passive black box implies charge storage, which generally means
>> capacitance.
>
>
> Boundary condition: There's nothing but wire inside the black box.

2081. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 15:05:04 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <2mvtd3-4kv.ln1@p400bob.personal.cox.net>
Source record: 63792

Yes. Dunno if I'd call it reliable though <grin>. If you had this kind
of system on a moving vehicle for example the RX would have to be able
to follow the TX. You'll get about +-200Hz shift with a speed of 100kph.
(ie 400Hz as a vehicle goes past you)

I have been intending for ages setting up a 2m beacon on my car and
seeing if I can yield any driving location/speed etc info from the shift
and phase noise. (11Hz at 100kph)

Cheers Bob VK2YQA

mazerom wrote:
>
> the doppler shift is fundamentally a tone frequency brought about by a
> continuous wave source moving in and out. is it possible to have
> reliable doppler shift when our source is spread spectrum or say some
> form of digital modulation?
>

2082. Re: Where can I get a new telescoping Antenna for a Grundig FR-200

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 16:21:12 UTC
From: "R Black"
Message-ID: <120onvc73aopp9c@corp.supernews.com>
Source record: 63793

Well, I finally discovered that the radio is made an serviced by eaton
and they have a website with replacemet parts. To bad grundig does not
tell one this on there website.

Chip

R Black wrote:
> I have a Grundig FR-200 and it works great. My kids, however broke the
> telescoping antenna, and I would like to get a new one.
>
> Does anyone know where I can purchase a new antenna? I did a web search
> and found no references to spare parts.
>
>
> Thanks
>
> Chip
> kf4wbk

2083. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 16:36:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <syZOf.37417$Jd.10485@newssvr25.news.prodigy.net>
Source record: 63794

Roy Lewallen wrote:
> Now explain how you'd do it with a box having only two terminals -- and
> assuming the box is very small compared to a wavelength.

Assume a one-wavelength dipole off-center fed 1/4WL from
one end. Using EZNEC with 60 segments, feeding at segment
number 15 is 24.2% from one end and that's close enough
for this example. This is actually done in EZNEC with a
130 ft. dipole on 7.2 MHz and I'll email out that file
upon request. I'm going to describe the current
distribution in the following diagram with 60 segments
running from left to right in *fixed font*. Eash dash
corresponds to a segment in EZNEC and F is the feedpoint.

```
seg L L seg
1 v v 60
--------------F-----------------------------------------
^ ^ ^
N N N
```

The current distribution is sinusoidal. N stands for 'node'
which is a current minimum point. L stands for 'loop' which
is a current maximum point. Since I'm limited to ASCII, the
reader will need to imagine a current envelope drawn from
seg 1 up to 'L', down to seg 30, back up to 'L', and back
down to seg 60. I'll follow this posting up with actual
EZNEC graphics posted to my web page.

Now we are going to replace part of that wire with a 6" long
coil. A 6" long coil on 7.2 MHz is about 1/3 of one percent
of a wavelength so that should qualify as 'very small'. And,
to illustrate another fact, I'm going to make the coil from
1/4 wavelength of wire, 33' on 40m, and try to model that
using the helical coil feature of EZNEC. That may or may not
violate an EZNEC design rule - I just don't know yet. But
it doesn't change the concepts being presented here.

Let me say this is a very rough approximation to what happens
in the real world. The concepts are accurate. The values may
be off by a relatively large percentage. The coil certainly
distorts the current away from that near-perfect sinusoid and
certainly doesn't radiate like the wire it replaces. But roughly,
here will be the results of placing the bottom of the coil at
seg 30:

```
seg L L seg
1 v v 46
--------------F---------------////----------------
^ ^ ^
N N N
```

The current at the left end of the coil will be low because that is roughly the location of a current node (minimum). The current at the right end of the coil will be high because that is roughly the location of a current loop (maximum). If one considers the current flowing from left to right, more current will be flowing into the coil than is flowing out of it, like the current at:

http://www.qsl.net/w5dxp/qrzgif35.gif

This is a standing-wave antenna so the standing-wave current displayed by EZNEC is flowing hardly at all. That standing-wave current consists of two component phasors, rotating in opposite directions. That's why the phase of the standing-wave current is relatively constant. The standing-wave phasor, the superposition of the forward and reflected current phasors, rotates hardly at all, usually by just a few degrees from end to end in a 1/2WL dipole. If the dipole is made of 'thin wire', the phase of the standing-wave current is fixed at zero degrees. (Can a phasor that doesn't rotate be called a phasor?)

Taking 1/4WL of the antenna wire and winding it into a high-Q coil above replaces *roughly* 90 degrees of the antenna. The radiation pattern certainly changes because the coil doesn't radiate much. But we are not concerned about radiation patterns in this discussion. We are concerned about the current at each end of the coil, the same current that we measure and the same current reported by EZNEC. That current is certainly not constant through the coil and THE DIFFERENCE IN THE MAGNITUDE OF THE CURRENT AT EACH END OF THE COIL DEPENDS UPON WHERE IT IS PLACED IN THE STANDING-WAVE SYSTEM.

The traveling-wave current through a coil is close to equal at each end. The standing-wave current at each end of a coil is NOT equal unless we locate the center of the coil at a current node or at a current loop. In a bottom-loaded mobile antenna, the coil is located very near a current loop where the slope of the current is near zero. In fact, the net current peaks inside the bottom-loading coil.

So the concept that net current at each end of a coil installed in a standing-wave environment is equal is just a myth, an old wives' tale that needs to be banned from ham radio.

The coil does indeed cause considerable distortion away from the perfect cosine current wave exhibited by a thin wire. But the macro effects of that cosine wave still exist when a coil is

installed. The current at each end of a coil installed in a
standing-wave antenna depends upon its location in the system.
--
73, Cecil http://www.qsl.net/w5dxp

2084. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 16:45:48 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <0HZOf.57636$g47.18172@tornado.tampabay.rr.com>
Source record: 63797

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:120ngtl3drs574@corp.supernews.com...
> I'm glad to see that my chiding has had a positive result.
>
> Be sure you calibrate your S-meter on each band you'll be using it on,
> and that the RF gain control and any preamplifier and input attenuator
> settings are the same as they are when making measurements.
>
> Especially when comparing horizontal and vertical antennas, you'll
> likely have to make several measurements over a period of time. I've
> seen many cases where one antenna is a good 20 dB stronger than the
> other, then over the next minute or so their relative strengths reverse.
> This is due to polarization rotation of the received signal. On 40 and
> 80 meters at least, this is common and often has a period of around a
> minute or more. Really makes me chuckle when I hear "Ok, this is antenna
> 1. Now this is antenna 2. Which is stronger?"
>
> If neither antenna is consistently stronger than the other, you can put
> a fixed attenuator is line with one of the antennas and the step
> attenuator in line with the other to make comparison easier.
>
> People who blindly assume the marks on their S-meters are 6 dB apart
> should take a good look at your calibration results.
>
> Roy Lewallen, W7EL
>
> Mike Coslo wrote:
> > Based on another thread a few weeks back in which Horizontal dipoles
> > were being compared to Vertical antennas, and from a little chiding from
> > Roy, W7EL, I decided to do some testing on my own personal versions of
> > the two.
> >
> >
> > My setup is:
> >
> > Icom IC-761
> > Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
> > Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.
> >
> >
> > Part one of this experiment is to calibrate the S-meter. I found that
> > trying to calibrate the thing with on-air signals was a nuisance, and
> > probably wouldn't be as accurate, so I used a signal generator.
> >

> > I started out with a +20 signal, then worked my way down.
> >
> > +20 start
> > S9 -18 db
> > S8 -23 db
> > S7 -26 db
> > S6 -29 db
> > S5 -32 db
> > S4 -35 db
> > S3 -37 db
> > S2 -39 db
> > S1 -41 db
> >
> > All in all, I would have to say that the meter tracks very well from S8
> > to S4, and the only place that wasn't that great was from S9 to S8. But
> > considering the transient nature of the signals we are receiving, I
> > would have to day that the S-meter is of reasonably close accuracy.
> >
> > With my newly calibrated S-meter I am ready to start looking at what the
> > two different antennas are doing for me. I have a coaxial switch to jump
> > back and forth between the two. My initial impressions are that there
> > are some surprises. The difference in noise levels varies by antenna by
> > band. On some bands the vertical is noisier, and on others it is the OCF
> > dipole. Especially intriguing is that on PSK mode, where I can see
> > several signals at one time, switching between antennas will attenuate
> > some signals, while other signals increase in strength. I think that my
> > vertical works better than I gave it credit for, but If I definitely
> > want *both* antennas.
> >
> > Next installment will be the band to band comparison of the two antennas
> > with some numbers.
> >
> > Installment three will be an investigation of that PSK signal strength
> > business.
> >
> > - 73 de Mike KB3EIA -

Man, this is Ham Radio at its best!

west
AF4GC

2085. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 16:55:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YPZOf.37419$Jd.32412@newssvr25.news.prodigy.net>
Source record: 63795

Richard Harrison wrote:

> Unlike the usual transmission line, the wire is coiled to get
> reactance into a small space. The effect is the same in that phase shift
> is distributed along the length of the wire.

W8JI measured a 60 degree phase shift through a 100uH coil
at 1 MHz. Consider that at one end of that coil the
forward and reflected currents may be:

Ifor = 0.55 amps at zero deg, Iref = 0.45 amps at zero deg.

Inet = Ifor + Iref = 1 amp at zero degrees.

At the other end of the coil, the forward and reflected
currents may be:

Ifor = 0.55 amps at +60 deg, Iref = 0.45 amps at -60 deg

Inet = Ifor*cos(60) + Iref*cos(-60)

Inet = 0.275 + 0.225 = 0.5 amps at zero deg

Some items of note:

1. The forward current magnitude is the same at both ends
2. The forward current phase is shifted by 60 degrees
3. The reflected current magnitude is the same at both ends
4. The reflected current magnitude is shifted by -60 deg
5. The forward and reflected current phasors rotate in
opposite directions
6. The net current phase is unchanged through the coil
7. The net current magnitude is changed by 100% from 0.5
amps to 1.0 amps.
--
73, Cecil http://www.qsl.net/w5dxp

2086. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 16:58:03 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duhpmr$5qq$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63796

Dear Richard,

You must have a very extensive library.

By the way, it is NOT Terman or his books which I disdain.

It is the TREATMENT, by his readers, of his books as Bibles which I disdain.

The situation is on a par with the more modern, unjustifyable, absolute confidence placed in computer programs and pocket calculators by their users.

Computer programs have authors. How much confidence can be placed in THEM is what matters.

Amongst my exceedingly small collection of books is one of Terman's. It was printed during WW2. I bought it, second hand, just after the war. 60 years back I learned, critically, a lot from it. Nowadays I refer to it every few months when searching for something about which to write another computer program. So the book is still quite valuable as a comprehensible collection of topics.

I have nothing from Kraus. I know of him only from the frequency at which he is referred to by bible worshippers on this newsgroup.

I have read about B,L & E. They are the famous trio who left the site without bothering to measure ground resistivity. Their boss should have sent them back. Who was HE? He must have known what they were up to less than THEY did.

Being a WW2 veteran I'm pleased to meet you. The experience, like mine, was educational. And I'm sure you have a sense of humour similar to mine. ;o)

Regards, Reg, G4FGQ.

2087. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 17:33:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vn_Of.27533$_S7.13468@newssvr14.news.prodigy.com>
Source record: 63798

Gene Fuller wrote:
> I have no issue with the use of network theory, reflection coefficients,
> standing waves, or any other commonly used descriptions. However, none
> of these mathematical conveniences change the fundamental physical laws.
> If current, and therefore charge, appears to be unbalanced, then there
> must be charge storage somewhere.

Gene, the flaw is in your misunderstanding of the
fundamental physical laws, not in those laws.

We measure the net current at one end of a coil at 0.1
amp and we measure net current at the other end of the
coil at 0.7 amps (my web page example). The net current
APPEARS to be unbalanced, but appearances can be
deceiving. THERE IS NO STEADY-STATE CHARGE STORAGE
ANYWHERE IN THE SYSTEM. Does this violate any fundamental
physical laws? Of course not. Here's why (neglecting losses):

V*I*cos(theta) equals the same power at both ends of the
coil. That proves there is no steady-state energy storage.

V1*(0.7)*cos(theta1) = V2*(0.1)*cos(theta2)

This is a distributed network. A lumped circuit analysis
fails miserably when you try to use it in a standing-
wave environment and you have just proved it. That is
also the same mistake that W8JI and W7EL have been
making.

The forward current at the 0.7 amp point is 0.4 amps at
zero deg. The reflected current at the 0.7 amp point is
0.3 amps at zero degrees. The net current is the phasor
sum of those two component currents.

Inet = (0.4 amps at zero deg) + (0.3 amps at zero deg)
Inet = 0.7 amps at zero deg

The forward current at the 0.1 amp point is 0.4 amps at
82 degrees. The reflected current at the 0.1 amp point is
0.3 amps at -82 degrees. The coil causes an 82 degree
phase shift in both forward and reflected currents and
since their phasors are rotating in opposite directions,
the sign of their phase shifts are opposite.

The net current at this end of the coil is:

Inet = Ifor + Iref
Inet = (0.4 amp at 82 deg) + (0.3 amp at -82 deg)
Inet = 0.057 amps + 0.043 amps = 0.1 amp at zero deg

The fundamental physical laws are perfectly valid as has been demonstrated here. It is your understanding of them that seems to be the problem. You seem to have been fooled by appearances and as a result, you chose the wrong model with which to try to solve the problem. The distributed network analysis was developed because the lumped circuit analysis falls apart under certain circumstances. One of those circumstances is the presence of standing waves like the ones that exist in a 75m mobile antenna.
--
73, Cecil http://www.qsl.net/w5dxp

2088. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 17:42:41 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duhsah$6cc$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63799

"Richard Harrison" wrote
> There really is no need to rename the ubiquituos SWR meter as Reg
has
> recommended. This really requires no comment as it isn`t about to
> happen.
==========

Richard,

Maybe you are right about no need to rename the SWR meter. It does indeed indicate SWR when located at the correct place in the system, it is correctly calibrated impedance-wise, and there is a line on which it can be assumed an SWR exists.

But where the thing is located in 99.9 percent of occasions it indicates nonsense. Where SWR on the antenna's feedline is concerned it is totally misleading to novices, CB-ers, amateurs and professionals alike. Hardly educational!

I have noticed a few references to TLI are beginning to appear. All that's needed is a sensible Japanese, Chinese or Korean transceiver manufacturer to face the facts and refer to TLI in an operating or maintenance manual.

I know its sometimes difficult to learn a new word in a new way of thinking but force yourself to comply with the obvious!

It's much easier than having to change to the Metric System. The same economies apply.

Reg, G4FGQ.

2089. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 17:47:45 UTC
From: richardharrison@webtv.net
Message-ID: <12478-440C75C1-945@storefull-3258.bay.webtv.net>
Source record: 63801

Gene Fuller, W4SZ wrote:
"This is getting more interesting by the moment."

There are plenty of coils in boxes which have different currents into and out of their two ends.

A coil in a box used to be a common way to resonate a too-short 1/4-wave (90-degree) whip. A company I worked for had many Land Rovers, trucks, boats, and ships on and around the Argentine side of the island of Tierra del Fuego.These were equipped with H-F SSB tranceivers. Mobile amntenna was a stainless whip mounted atop a substantial fiberglass box. The box contained the loading coil which was accessible for preselecting the right coil tap to resonate the whip with the vehicle for a particular operating frequency. The box also contained a motor-driven band-switch to automatically change taps on the coil when the frequency was changed on the radio.

I am well aware of the ability to resonate a 90-degree whip with no more than the proper coil in series with the short whip on a base insulator. I tuned every one of those coils for each of the frequencies we used in Argentina with my own hands.

ON4UN has a graph, Fig 9-22 on page 9-15 of "Low-Band DX-ing" which shows current distribution of a base-loaded whip, In his example, the whip is 45-degrees long.. The loading coil provides the extra 45-degrees required for resonance.

Current at the base of ON4UN`s whip is one amp times the cosine of 45-degrees, or 0.707 amp. The loading coil has an input of one amp.

With 1 amp into the loading coil and 0.707 amp out of the loading coil, the coil definitely does not have the same current at both ends.

Best regards, Richard Harrison, KB5WZI

2090. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 17:50:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sD_Of.27544$_S7.17269@newssvr14.news.prodigy.com>
Source record: 63800

Reg Edwards wrote:
> I have nothing from Kraus. I know of him only from the frequency at
> which he is referred to by bible worshippers on this newsgroup.

Reg, for anyone who is interested, "Antennas for All Applications",
3rd edition, by Kraus and Marhefka, ISBN 0-07-232103-2, is available
"new" or "as new" from the following source for $30. It would be nice
if everyone on this newsgroup would spring for one. It comes close to
being the best $30 that I ever spent on a book.

http://www.abebooks.com/

http://dogbert.abebooks.com/servlet/SearchResults?sts=t&y=12&isbn=0072321032&x=54

--
73, Cecil http://www.qsl.net/w5dxp

2091. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 18:18:10 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141669090.526184.282340@v46g2000cwv.googlegroups.com>
Source record: 63802

Bob wrote, "You'll get about +-200Hz shift with a speed of 100kph."

Ahem. Care to qualify that as to the carrier or transmitted
frequency??

2092. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 18:21:44 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duhujocee1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63803

Roy says,
> > People who blindly assume the marks on their S-meters are 6 dB
apart
> > should take a good look at your calibration results.

==========

The calibration of S-meters, 3dB or 6dB per S-point, has nothing to do with which antenna produces the stronger received signal. It is purely a comparison. Just use the same meter throughout the tests.

Roy, you must be still be using that ancient receiver. No doubt it is working fine. But you still refer, quite arbitraliry, to your personal S-meter as the North American Calibration Standard. Must everybody else fall into line? Not me!

Reg.

2093. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 18:37:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vj%Of.27561$_S7.6911@newssvr14.news.prodigy.com>
Source record: 63804

Richard Harrison wrote:
> ON4UN has a graph, Fig 9-22 on page 9-15 of "Low-Band DX-ing" which
> shows current distribution of a base-loaded whip, In his example, the
> whip is 45-degrees long.. The loading coil provides the extra 45-degrees
> required for resonance.
>
> Current at the base of ON4UN`s whip is one amp times the cosine of
> 45-degrees, or 0.707 amp. The loading coil has an input of one amp.
>
> With 1 amp into the loading coil and 0.707 amp out of the loading coil,
> the coil definitely does not have the same current at both ends.

It's not that perfect in the real world but the basic concept
still applies. The actual current at the top of the coil is
somewhat higher than 0.707 amp because the current inside
the coil is greater than 1 amp. EZNEC says the current about
1/3 of the way up from the bottom of the coil is about 1.15
amp. The inductance of the coil forces the phase between
the voltage and current to increase. To maintain the same
V*I*cos(theta) power, the current must also increase.

The high flux fields developed inside the coil somewhat distort
the perfect current cosine wave found in a thin wire dipole so
it is not quite as black and white as ON4UN indicates.
--
73, Cecil http://www.qsl.net/w5dxp

2094. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 18:42:47 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <f70p02lfmrvo1s4kki8ebnegvftpiruk8r@4ax.com>
Source record: 63805

On Mon, 6 Mar 2006 16:58:03 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>I have read about B,L & E. They are the famous trio who left the site
>without bothering to measure ground resistivity.

This is the makings of Victorian Melodrama, because they also did not
measure:
the altitude;
the humidity;
the phase of the moon;
the date of the Paschal moon;
the height of the tide in Tasmania;
the frequency of eruptions from Mt. Etna;
the red shift emitted from the star Betelgeuse.

Of course, Reggie, I will leave you with the last half dozen responses
to flesh out this list.

73's
Richard Clark, KB7QHC

2095. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 18:52:18 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ut0p02tglqqhhg50l137k8lrg686lobkd9@4ax.com>
Source record: 63806

On Mon, 06 Mar 2006 13:27:19 GMT, "John, N9JG"
<john@gotwals.XremoveY.com> wrote:

>the mechanics of mounting the second loop concerns me.

Very simple. Build a loop out of coax 1/5 the size of the main loop.
Make it out of the drive line by attaching the center conductor to the
shield at the point of full circumference. Put the loop inside the
main loop, co-planar, anywhere that conveniently suits you (I cannot
imagine a reason to climb a ladder to the top of the arc to do this,
though). Reggie's correspondence is more complete than this if you
can find it among his leavings in the archive.

73's
Richard Clark, KB7QHC

2096. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:00:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sF%Of.27631$_S7.16671@newssvr14.news.prodigy.com>
Source record: 63807

Cecil Moore wrote:
> If one
> considers the current flowing from left to right, more current
> will be flowing into the coil than is flowing out of it, ...

Correction! Should say: If one considers the current flowing from
left to right, more current will be flowing out of the coil than
is flowing into it, ...
--
73, Cecil http://www.qsl.net/w5dxp

2097. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:02:02 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <o81p02lbvq5impeddk60r8hrq45evlnscp@4ax.com>
Source record: 63809

On Mon, 6 Mar 2006 18:21:44 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Roy says,
>> > People who blindly assume the marks on their S-meters are 6 dB
>apart
>> > should take a good look at your calibration results.
>
>=====================================
>
>The calibration of S-meters, 3dB or 6dB per S-point, has nothing to do
>with which antenna produces the stronger received signal. It is purely
>a comparison. Just use the same meter throughout the tests.

You've caught Lord Kelvinator's ire, here. If you cannot state what
an S-point is, you have nothing to offer. There is absolutely no
guarantee that two test will fall on the same cardinal points on a
scale that is not monotonic. (Sorry this isn't in your English, but
you do claim to be a fella of the guys who measure things.)

>Roy, you must be still be using that ancient receiver. No doubt it is
>working fine. But you still refer, quite arbitraliry, to your personal
>S-meter as the North American Calibration Standard. Must everybody
>else fall into line? Not me!

Hi Reggie,

If you had read the thread instead of the wine label, you would see
this reporting of S-meters was from Mike, and confirmed by Roy (and so
would I with two more rigs, each with their variances).

What is lacking are YOUR data. Lord Kelvinator is winding up a pitch
to bounce another piece of chalk off your nappin' noggin'.

DUCK!

73's
Richard Clark, KB7QHC

2098. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:03:15 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <0r1p029kmjcb9his8stsk70ip253ghboda@4ax.com>
Source record: 63810

On 6 Mar 2006 06:09:02 -0800, "mazerom" <romulo.maggay@wherewoof.com>
wrote:
>just wanna confirm.
>u were saying we can still get a reliable doppler shift from a
>modulated signal be it analog or digital?
>thank u so much
yes

2099. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:03:16 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120p1rocfoni584@corp.supernews.com>
Source record: 63808

Reg Edwards wrote:
> Roy says,
>>> People who blindly assume the marks on their S-meters are 6 dB
> apart
>>> should take a good look at your calibration results.
>
> ====================================
>
> The calibration of S-meters, 3dB or 6dB per S-point, has nothing to do
> with which antenna produces the stronger received signal. It is purely
> a comparison. Just use the same meter throughout the tests.
>
> Roy, you must be still be using that ancient receiver. No doubt it is
> working fine. But you still refer, quite arbitraliry, to your personal
> S-meter as the North American Calibration Standard. Must everybody
> else fall into line? Not me!
> ----
> Reg.

I hate to call a liar a liar, but sometimes it's hard to take. You're lying again, Reg.

I've never referred to my rig's meter as a calibration standard. I've used it as an example many times of a meter whose response is far from the 6 dB per S unit many people assume. It's my argument that any S-Unit "standard" at all is of no use, except by misleading people into thinking that it has some relation to the markings on their S meters. Mike's measurements serve the same purpose.

And you've claimed your rig has an adjustment allowing calibration of its S-meter to 6 dB per unit, but have never been willing to share the type of rig or what the adjustment control designation is. Frankly, I believe you're fabricating that, also.

It's sad -- you have a lot to offer, but somehow feel compelled to come up with pure fabrications from time to time. It makes some of us view everything else you say with some skepticism.

Roy Lewallen, W7EL

2100. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:16:12 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120p2jvqiuees27@corp.supernews.com>
Source record: 63811

Gene Fuller wrote:
> Richard,
>
> After that response all I can say is, this newsgroup is sure good for
> entertainment.
>

And you don't even need to read the present postings. This topic was beat to death in rather nauseating detail in November of 2003 -- see the "Current in antenna loading coils controversy (long)" thread in groups.google.com. It disgusted me because I spent a day setting up a test to make some careful measurements. Before reporting them, I asked Cecil, Yuri, and other proponents of various theories to use their theory to predict what the results would be. As you can see by reviewing the record, after being pushed, Cecil made a couple of different guesses but retracted them. Yuri didn't make any. I made the measurements, and Cecil immediately claimed that I had just proved exactly what he had predicted!

Then there was "More W8JI "wisdom" in August 2005. And now things must be getting boring again out in the Texas prairie, so here it comes again. Have fun, folks.

Roy Lewallen, W7EL

2101. Re: Compact loop question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:26:14 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <q10Pf.598935$084.353280@attbi_s22>
Source record: 63812

As you describe it, it does seem to be simple. But, the inner loop is made from coax and is flexible. Now I do plan to have a fiberglass pole, in the plane of the loop, which will connect the top and the bottom of the loop so as to give some rigidity to the outer loop. Perhaps this pole can also partially support the inner loop. In any case I do appreciate your advice and comments.
-- John

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:ut0p02tglqqhhg50l137k8lrg686lobkd9@4ax.com...
> On Mon, 06 Mar 2006 13:27:19 GMT, "John, N9JG"
> <john@gotwals.XremoveY.com> wrote:
>
>>the mechanics of mounting the second loop concerns me.
>
> Very simple. Build a loop out of coax 1/5 the size of the main loop.
> Make it out of the drive line by attaching the center conductor to the
> shield at the point of full circumference. Put the loop inside the
> main loop, co-planar, anywhere that conveniently suits you (I cannot
> imagine a reason to climb a ladder to the top of the arc to do this,
> though). Reggie's correspondence is more complete than this if you
> can find it among his leavings in the archive.
>
> 73's
> Richard Clark, KB7QHC

2102. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:30:52 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <M50Pf.27874$_S7.16265@newssvr14.news.prodigy.com>
Source record: 63813

Roy Lewallen wrote:
> And now things must
> be getting boring again out in the Texas prairie, so here it comes
> again. Have fun, folks.

Roy, you are like the novice who uses a DC ohm-meter to measure
the feedpoint impedance of an antenna. You are using a lumped
circuit analysis in the presence of standing waves, not
realizing what an extreme technical blunder that really is.
Worse yet, you belittle people who point out your blunder.
--
73, Cecil http://www.qsl.net/w5dxp

2103. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 19:45:04 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <4j0Pf.514311$qk4.668@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63814

Cecil,

I have lots of flaws, most of them unrelated to RRAA. But a lack of understanding of fundamental physical laws is not one of them.

Two points, and I won't carry on further.

* Who said anything about "steady state"?

* Current is generally accepted as the flow of charge. (If you know some other definition perhaps that is part of our disagreement.) When the current is different at the ends of a simple two terminal device then the charge flow is different as well. Since charge cannot be created or destroyed (I hope you have no argument with that) then it must be stored or depleted somewhere in that two terminal device. We most likely don't have chemical reactions going on in that device so the charge storage is facilitated through capacitance.

That is what Reg said. You disagreed. Reg is correct.

(No one is discussing power, phasors, degrees, distributed models or anything else you expounded on. Save it for another day.)

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I have no issue with the use of network theory, reflection
>> coefficients, standing waves, or any other commonly used descriptions.
>> However, none of these mathematical conveniences change the
>> fundamental physical laws. If current, and therefore charge, appears
>> to be unbalanced, then there must be charge storage somewhere.
>
>
> Gene, the flaw is in your misunderstanding of the
> fundamental physical laws, not in those laws.
>
> We measure the net current at one end of a coil at 0.1
> amp and we measure net current at the other end of the
> coil at 0.7 amps (my web page example). The net current
> *APPEARS* to be unbalanced, but appearances can be
> deceiving. THERE IS NO STEADY-STATE CHARGE STORAGE
> ANYWHERE IN THE SYSTEM. Does this violate any fundamental
> physical laws? Of course not. Here's why (neglecting losses):

>
> V*I*cos(theta) equals the same power at both ends of the
> coil. That proves there is no steady-state energy storage.
>
> V1*(0.7)*cos(theta1) = V2*(0.1)*cos(theta2)
>
> This is a distributed network. A lumped circuit analysis
> fails miserably when you try to use it in a standing-
> wave environment and you have just proved it. That is
> also the same mistake that W8JI and W7EL have been
> making.
>
> The forward current at the 0.7 amp point is 0.4 amps at
> zero deg. The reflected current at the 0.7 amp point is
> 0.3 amps at zero degrees. The net current is the phasor
> sum of those two component currents.
>
> Inet = (0.4 amps at zero deg) + (0.3 amps at zero deg)
> Inet = 0.7 amps at zero deg
>
> The forward current at the 0.1 amp point is 0.4 amps at
> 82 degrees. The reflected current at the 0.1 amp point is
> 0.3 amps at -82 degrees. The coil causes an 82 degree
> phase shift in both forward and reflected currents and
> since their phasors are rotating in opposite directions,
> the sign of their phase shifts are opposite.
>
> The net current at this end of the coil is:
>
> Inet = Ifor + Iref
> Inet = (0.4 amp at 82 deg) + (0.3 amp at -82 deg)
> Inet = 0.057 amps + 0.043 amps = 0.1 amp at zero deg
>
> The fundamental physical laws are perfectly valid as has
> been demonstrated here. It is your understanding of them
> that seems to be the problem. You seem to have been fooled
> by appearances and as a result, you chose the wrong model
> with which to try to solve the problem. The distributed
> network analysis was developed because the lumped circuit
> analysis falls apart under certain circumstances. One of
> those circumstances is the presence of standing waves like
> the ones that exist in a 75m mobile antenna.

2104. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 20:11:35 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns977E7C12324E1spectrumhogstarbandn@129.250.170.89>
Source record: 63817

>
> And you've claimed your rig has an adjustment allowing calibration of
> its S-meter to 6 dB per unit, but have never been willing to share the
> type of rig or what the adjustment control designation is. Frankly, I
> believe you're fabricating that, also.

This thread raises a possible marketing opportunity for someone. Yes,
it is quite unlikely, due to their non-linear construction, that an
analog meter would properly display S units in 6dB increments.

So..... someone ought to design a nice little digital unit that could
somewhat easily be hooked up to most radio Rx circuits, and be capable of
displaying S units or microvolts (selected at push of a button) and also
have a fully adjustable means to calibrate the S unit readings so that
they would, in fact, display in linear 6dB increments, and actual
microvolts at Rx input, too. Probably wouldn't sell cheap, but there
would be those hams who'd love to have such a device.

I suppose just a display for microvolts would suffice, though, and
that isn't hard to do at all. or just calibrate and re-paint the S meter
face to match...

Ed K7AAT

2105. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 20:21:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <IR0Pf.45044$H71.43195@newssvr13.news.prodigy.com>
Source record: 63815

Gene Fuller wrote:
> I have lots of flaws, most of them unrelated to RRAA. But a lack of
> understanding of fundamental physical laws is not one of them.

Gene, you proved beyond any doubt, during the rest of your posting,
that you even though may quote the fundamental laws, you are
misunderstanding those fundamental laws. I think Richard Harrison
does understand. If you refuse to listen to me, then please listen
to him.

> Current is generally accepted as the flow of charge.

Standing wave current is a net charge flow of zero. Standing wave
current is DIFFERENT from traveling wave current. At any and every
point, the standing wave current is NOT moving. Since it is not
moving, there is NO net charge flow. Please read, understand, and
respond to the following simple example and questionaire:

Lossless Transmission Line, SWR is infinite

Ifor--> 1 amp <--Iref 1 amp

1. Is there any net flow of charge? _____

2. Is the current at a current maximum point equal to 2 amps? _____

3. Is the current at a current minimum point equal to 0 amps? _____

4. Is there any net flow of charge between the 2 amp point and the
zero amp point? _____

5. If I replace the 1/4WL section of wire with a 90 degree phase
shifting coil, have I changed very much? _____

6. If the current at one end of that coil is 0 amps and the current
at the other end of that coil is 2 amps, is there any net flow of
charge through the coil? _____

> When the current is different at the ends of a simple two terminal
> device then the charge flow is different as well.

That is definitely NOT true for standing wave current. There
is ZERO net charge flow for standing wave current. And standing wave
current is exactly what you are measuring in a standing wave antenna
like a 75m mobile antenna.
--
73, Cecil http://www.qsl.net/w5dxp

2106. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 20:23:35 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jj5p025dc3d4d664nr559mjlurdhh37lae@4ax.com>
Source record: 63816

On Mon, 6 Mar 2006 04:49:53 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

Richard,

You originally stated:

On page 99 of Terman`s 1955 edition of "Electronic and Radio Engineering" (my textbook was an earlier edition) is found the formula to convert the reflection coefficient into SWR or vice versa. These two parameters are innexorably locked together by formulas (4-22a) and (4-22b).

You are squirming away from the accuracy of your assertion that Terman calculates reflection coefficient from SWR, ie the "or vice versa" in your statement.

The reflection coefficient is a complex number with magnitude and phase, as you acknowledge when you later say "It is true that the reflection coefficient is a vector ratio of the reflected voltage to the incident voltage at the load".

In formula 4-22b of my copy of Terman, the term on the lhs is |rho|, which is the magnitude of the reflection coefficient.

No, you cannot calculate the reflection coefficient from SWR alone, but you can calculate the magnitude alone, but that is less information than the reflection coefficient.

To illustrate, and as you know, the reflection coefficient at a point can be used with the line propagation constants to calculate the impedance at another point on the line. You cannot do that with the magnitude of the reflection coefficient.

You have misrepresented Terman, he does not calculate the reflection coefficient from SWR (at least not in my copy).

Owen
--

2107. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 20:33:31 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <GfHGLuhbyJDEFATi@ifwtech.co.uk>
Source record: 63818

Richard Harrison wrote:
>
>ON4UN has a graph, Fig 9-22 on page 9-15 of "Low-Band DX-ing" which
>shows current distribution of a base-loaded whip, In his example, the
>whip is 45-degrees long.. The loading coil provides the extra
>45-degrees required for resonance.
>
Those diagrams were highly misleading, and have been withdrawn from the current 4th edition. That whole introduction to short verticals has been completely rewritten and revised.

The problem was that the current profiles of the full-size and loaded quarter-wave antennas were both drawn against a linear vertical scale of *phase*. This not only misrepresented the physical lengths of the lower and upper sections, it also misrepresented the length and effect of the coil. This presentation is highly misleading, and the first victim was the person who drew it, and then overlaid current profiles on it.

(I don't think this was ON4UN. When someone sets out to produce a 500-page book, they have to quote some things on trust from other people; and it may take a few editions to iron out all the kinks. Much more to the point, ON4UN is right at the leading edge of his subject, and each edition contains something new and important.)

The replacement diagrams in the 4th edition are much better. They show current profiles against *physical* height, and help bring out what's really happening.

>Current at the base of ON4UN`s whip is one amp times the cosine of
>45-degrees, or 0.707 amp. The loading coil has an input of one amp.
>
>With 1 amp into the loading coil and 0.707 amp out of the loading coil,
>the coil definitely does not have the same current at both ends.
>
You can't quite those figures in evidence, because they were never more than a speculation based on misunderstandings. When ON4UN came to think about it, he quite rightly changed his mind.

This brings up another point that hasn't been mentioned so far in this discussion: there is an important difference between purely inductive loading, and the kind of loading you can get from any practical inductOR.

Note the difference. An inductOR is a real-life electronic component, a coil of wire. InductANCE is its main electrical property - but it isn't the only one.

When a shortened antenna is loaded by pure inductance, you find the following:

1. The magnitude and phase of the current flowing into the loading inductance are both the same as that of the current flowing out (this is a fundamental property of pure inductANCE). This means the current distributions in the sections above and below the loading inductance join up in a sharp kink.

2. What does go through a step change is the *voltage* across the inductance. This changes in both magnitude and phase. For a typical centre-loaded whip, the RF voltage is low in all of the bottom section, but above the loading inductance it's very high indeed.

To repeat: this is the situation for loading with pure inductANCE.

(Sorry to keep shouting "ANCE!" and "OR!" like that, but I'll bet someone still comes back with a reply that proves they didn't read what I actually wrote.)

The diagram in ON4UN's 4th edition (Fig 9-44) shows these effects much better than I can describe them in words. The diagram came from an article by W7XC in QST for March 1990. I strongly recommend everyone to look at these diagrams... but please don't treat them as 'bible text'. Do your own thinking about it.

A different viewpoint on loading inductANCE is given in an article by Boyer in 'Ham Radio'. This uses the 'antenna-transmission line analog' theory... and comes to exactly the same conclusions about the effects of loading inductANCE: it is simply there to resonate the capacitive reactance that arises from having physically shortened the antenna. (Ironically, ON4UN's worked examples and computer programs to calculate loading inductance have always been based on this approach; the conceptual error in early editions was only in that one diagram.)

With a firm grip on the way that pure inductANCE loads an antenna, you are then in a good position to look at the differences that appear when you use a practical inductOR.

With a real-life inductOR, you don't have pure inductANCE any more. It is embedded in a component that is made from some length of wire, wound into a coil that has a physical length and diameter, has capacitance between its own turns, and also has capacitance to the straight sections of antenna above and below it. The effects of the coil's inductANCE will still be there, but you can certainly expect to see a lot of detailed differences.

But the practical differences can't possibly be understood without that basic understanding about inductANCE as a foundation. Without it, you're building your house on sand.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2108. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 20:51:26 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <440ca00e_5@newsfeed.slurp.net>
Source record: 63819

"Ed" wrote:
> I suppose just a display for microvolts would suffice, though, and
> that isn't hard to do at all. or just calibrate and re-paint the S meter
> face to match...

Just don't expect that the S-meter so "calibrated" is reading the real value of the incident field arriving at the rx antenna. It won't be, unless that calibration includes (exactly) the real-world performance of the receiving antenna system at each frequency, including line loss, local reflections, and other factors.

Otherwise the reading still will be given in fairly meaningless, relative terms -- the same as S-units.

RF

2109. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 21:19:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sH1Pf.45046$H71.28164@newssvr13.news.prodigy.com>
Source record: 63820

Ian White GM3SEK wrote:
> 1. The magnitude and phase of the current flowing into the loading
> inductance are both the same as that of the current flowing out (this is
> a fundamental property of pure inductANCE).

That is a fundamental property of a pure inductance in a lumped circuit analysis which assumes a DC current or a pure traveling-wave current. It is NOT a fundamental property of a pure inductance if the current you are talking about is a net standing wave current. Your stated principle is simply false for a standing wave environment. In a transmission line, it is easy to install a coil that has zero current at one end and an amp of current at the other end.

It simply doesn't apply in a standing wave environment - and a 75m bugcatcher loaded mobile antenna is a standing wave antenna. Please take a look at my example and questionaire to understand what is wrong with your above statement.

The measured current at the bottom of a loading coil is primarily standing wave current. IT IS NOT FLOWING.

The measured current at the top of a loading coil is primarily standing wave current. IT IS NOT FLOWING.

Since neither of these two currents are flowing, they don't have to be equal. They just stand there.

If I present to you a black box with zero amps at one terminal and one amp at the other terminal, what can we conclude? One possibility is 1/4 wavelength of coiled up coax with an infinite SWR. Please ponder that and apply it to your coil assertion above.

The currents that are doing the flowing are the underlying current components, the forward current and the reflected current and they are close to equal. Everything you say about a coil is true for the forward current and the reflected current. It is simply not true for the standing wave current which is just a conceptual construct and not a flowing phasor at all.

If you really want to accurately apply the principles you are asserting, you must treat the forward current and reflected current separately and then superpose the results. Applying your above principle to standing wave current is akin to superposing power and that's a no-no.

I have never seen such a wide-spread blind spot.

Take the transmission line example.

```
---------------------------X----------------------------
Ifor=1.0amp --> <--Iref=1.0amp
```

There's a black box at 'X'. Inside the black box is 1/4WL
of coiled up transmission line. The current measured at
left of the black box is zero amps. The current measured
at the right of the black box is 2 amps. That doesn't
violate any laws of physics. That obeys the laws of physics
for a transmission line with reflections. You are measuring
the currents at a current node and at a current loop. It's
absolutely no big deal.
--
73, Cecil http://www.qsl.net/w5dxp

2110. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 21:25:48 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns977E88C1761ADspectrumhogstarbandn@198.186.192.196>
Source record: 63821

>
> Just don't expect that the S-meter so "calibrated" is reading the real
> value of the incident field arriving at the rx antenna. It won't be,
> unless that calibration includes (exactly) the real-world performance
> of the receiving antenna system at each frequency, including line
> loss, local reflections, and other factors.
>
> Otherwise the reading still will be given in fairly meaningless,
> relative terms -- the same as S-units.

The bottom line for the Rx, all it cares about since it doesn't know what kind of antenna is feeding it, is the signal strength at the input.... so I'd say a calibrated microvolt reading reflecting that strength is not very meaningless at all. Any changes in the antenna system will of course change that, but the whole point of any antenna work is to maximize the signal voltage to that rx input, so I'd think a calibrated reading would be extremely useful over an S meter alone.

Ed K7AAT

2111. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 21:47:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120pbesgie9bdd3@corp.supernews.com>
Source record: 63822

Ed wrote:
>
> The bottom line for the Rx, all it cares about since it doesn't know
> what kind of antenna is feeding it, is the signal strength at the
> input.... so I'd say a calibrated microvolt reading reflecting that
> strength is not very meaningless at all. Any changes in the antenna
> system will of course change that, but the whole point of any antenna
> work is to maximize the signal voltage to that rx input, so I'd think a
> calibrated reading would be extremely useful over an S meter alone.

I'm afraid it might require more than simple calibration. The S-meter typically just shows the AGC voltage. The AGC response is only approximately logarithmic, and depends on the gain characteristics of the various stages being controlled. Gain characteristics are commonly very temperature sensitive, so any calibration scheme would have to take that into account, as well as the common deviation from true logarithmic response of the various stages. Calibration would also be different on different bands, with and without preamplifier or attenuators, etc.

Of course, you could make a receiver with very nearly true logarithmic response, by use of one of the excellent, wide dynamic range log amps which are available these days. But however much you or I might like one, the vast majority of amateurs couldn't care less about what their S meter is really indicating, so they wouldn't pay the added cost for it.

On top of that, most amateurs would consider a 6dB-per-S-unit meter to be "dead", and would rather have it wiggle more.

Roy Lewallen, W7EL

2112. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 22:18:43 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1141683523.401360.217420@i40g2000cwc.googlegroups.com>
Source record: 63823

Chris W wrote:
> Can someone tell me where I can find the housings for a 1n21 crystal
> detector diode so I can hook it to some coax and a directional coupler?
> I can't seem to fine one anywhere

Chris,

I'm not sure exactly what you need. Are you working with microwave
frequencies?

I have some type N connectors that house a 1N21 and have a BNC on the
rear. Presumably it's simply a series diode used as a detector.

John

2113. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 22:27:17 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141684037.607691.234800@p10g2000cwp.googlegroups.com>
Source record: 63824

I fully agree with Roy's comment about the AGC-derived S-meter output. As he says, the AGC characteristics are temperature dependent, and they are also dependent on the particular set of active devices (and to some extent the passives too) in the signal path.

If you have access to a spectrum analyzer, chances are decent that it will have a well-calibrated amplitude readout. The one I use is accurate in a relative sense to a fraction of a dB over more than an 80dB range, and would certainly be sensitive enough for antenna comparisons. I suppose both those would be true of most modern spectrum analyzers. In addition, some are quite good at determining the total power in a specified frequency range, and if you can find such a range with no signals, you can get a better reading on noise than you're likely able to do with an S meter, or even a narrow band spectral measurement.

Cheers,
Tom

2114. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 22:42:26 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120pemmnd5voi9f@corp.supernews.com>
Source record: 63825

K7ITM wrote:
> I fully agree with Roy's comment about the AGC-derived S-meter output.
> As he says, the AGC characteristics are temperature dependent, and they
> are also dependent on the particular set of active devices (and to some
> extent the passives too) in the signal path.
>
> If you have access to a spectrum analyzer, chances are decent that it
> will have a well-calibrated amplitude readout. The one I use is
> accurate in a relative sense to a fraction of a dB over more than an
> 80dB range, and would certainly be sensitive enough for antenna
> comparisons. I suppose both those would be true of most modern
> spectrum analyzers. In addition, some are quite good at determining
> the total power in a specified frequency range, and if you can find
> such a range with no signals, you can get a better reading on noise
> than you're likely able to do with an S meter, or even a narrow band
> spectral measurement.

One of the most complex and difficult parts of a spectrum analyzer to design is the log amp which provides this stable and precisely logarithmic response over a wide dynamic range. There's an incredible amount of really ingenious work on the part of some extremely talented engineers in those circuits. In relatively recent times, Barrie Gilbert and his folks at Analog Devices have done some equally clever work in the design of IC log amps. It's not a trivial task by any means.

Roy Lewallen, W7EL

2115. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 22:44:19 UTC
From: Ed <Huckleberry_REMOVE_@newsguy.com>
Message-ID: <Xns977E961133EF6spectrumhogstarbandn@198.186.192.196>
Source record: 63676

> Of course, you could make a receiver with very nearly true logarithmic
> response, by use of one of the excellent, wide dynamic range log amps
> which are available these days. But however much you or I might like
> one, the vast majority of amateurs couldn't care less about what their
> S meter is really indicating, so they wouldn't pay the added cost for
> it.
>
> On top of that, most amateurs would consider a 6dB-per-S-unit meter to
> be "dead", and would rather have it wiggle more.
>
> Roy Lewallen, W7EL

So true, that last part! Well, I certainly understand the non-linearity of the RX when comparing gain accross the entire HF spectrum. I tend to limit my operations to top band and 75, so I hadn't considered changes in Rx gain when moving down the band (or up, as some would have it). Currently, when I do an Rx calibration, I just take some readings on my "S" meter when injecting a signal in the bands of my concern. A "list" of these readings for each band suffices, although I agree with you that that is far more than most hams would bother with.

Ed , K7AAT

2116. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 23:22:49 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <dv3Pf.20726$J02.5624@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63677

Cecil,

A few questions.

Do you have a reference that explains this "net standing wave current
that does not flow"?

Does this magical current have any other interesting properties besides
the lack of charge flow?

Do ordinary properties such as inductance and capacitance cease to
function when dealing with "net standing wave current"?

Do you really think it is a good idea to base detailed numerical
analysis on these "conceptual constructs" as you call them?

Do you have a convenient listing of your "conceptual contructs" so that
we can avoid these battles in the future?

8-) 8-)

73,
Gene
W4SZ

2117. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 23:27:50 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <vegp0218ugdj9n4si0o0boe6j5iuqcg44q@4ax.com>
Source record: 63678

On Mon, 06 Mar 2006 13:47:04 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

[snip]

>Of course, you could make a receiver with very nearly true logarithmic
>response, by use of one of the excellent, wide dynamic range log amps
>which are available these days. But however much you or I might like
>one, the vast majority of amateurs couldn't care less about what their S
>meter is really indicating, so they wouldn't pay the added cost for it.

Bill Carver, W7AAZ, designed such a beast. "A High-Performance AGC/IF
Subsystem", QST, May 1996.

I actually have one of his boards about half constructed... one I
started in 1996. Gotta get back to that someday.

2118. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 23:44:28 UTC
From: Dave <noone@nowhere.com>
Message-ID: <RNKdnWftgunBVJHZRVn-uQ@crocker.com>
Source record: 63679

yes, any em wave will be shifted in frequency/wavelength when there is a relative velocity between the tx and rx.

doppler shift is NOT 'a tone frequency'. it may be heard as a tone in a receiver if you beat it against a fixed local oscillator. But the doppler shift does not modulate the wave or change the type of modulation that may already be imposed on the wave by the transmitter.

now if you are talking about a doppler direction finder system... those work best with unmodulated signals, but will work with modulated signals but may have difficulty getting reliable directions, especially if the modulation frequency is near the rotational frequency of the array.

"mazerom" <romulo.maggay@wherewoof.com> wrote in message news:1141647965.814664.310580@i39g2000cwa.googlegroups.com...
> the doppler shift is fundamentally a tone frequency brought about by a
> continuous wave source moving in and out. is it possible to have
> reliable doppler shift when our source is spread spectrum or say some
> form of digital modulation?
>

2119. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 23:45:01 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <440cc8ba_5@newsfeed.slurp.net>
Source record: 63680

"Ed" wrote:
> The bottom line for the Rx, all it cares about since it doesn't know
> what kind of antenna is feeding it, is the signal strength at the
> input.... so I'd say a calibrated microvolt reading reflecting that
> strength is not very meaningless at all.

Received signal strength, whether in terms of relative S-units or the measure of real incident fields, is at least as much the result of local conditions as of the ERP of the transmission source on the path toward the receiver, the frequency, and propagation conditions.

So the received signal strength indication, whether relative or "real," isn't a hugely significant indicator of any of these parameters.

RF

2120. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-06 23:52:18 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <WINyuUpysMDEFAAV@ifwtech.co.uk>
Source record: 63681

Cecil Moore wrote:
>Ian White GM3SEK wrote:
>> 1. The magnitude and phase of the current flowing into the loading
>>inductance are both the same as that of the current flowing out (this
>>a fundamental property of pure inductANCE).
>
>That is a fundamental property of a pure inductance in a lumped
>circuit analysis which assumes a DC current or a pure traveling-
>wave current. It is NOT a fundamental property of a pure inductance
>if the current you are talking about is a net standing wave
>current. Your stated principle is simply false for a standing
>wave environment. In a transmission line, it is easy to install
>a coil that has zero current at one end and an amp of current
>at the other end.
>

Be very careful here. We're talking about the effect of cutting the physically shortened wire antenna, and inserting a loading device. This therefore has to be a TWO-terminal device.

>It simply doesn't apply in a standing wave environment - and a
>75m bugcatcher loaded mobile antenna is a standing wave antenna.
>Please take a look at my example and questionaire to understand
>what is wrong with your above statement.
>
>The measured current at the bottom of a loading coil is primarily
>standing wave current. IT IS NOT FLOWING.
>
>The measured current at the top of a loading coil is primarily
>standing wave current. IT IS NOT FLOWING.
>
>Since neither of these two currents are flowing, they don't
>have to be equal. They just stand there.
>

I'm sorry, but those last three paragraphs are simply contradictions in terms, which demonstrate their own illogicality.

Electrical current is defined as a net rate of transfer of electrons, so by the very definition of the term there is literally no such thing as a non-flowing current (except when the current is exactly zero and the definition becomes moot).

I seriously wonder if you understand what a standing wave is. It is simply a pattern of variation in current along the length of a transmission line, which is stable in time.

If you pick any point along the transmission line or antenna wire,
there is a simple net current characterized by one amplitude and one
phase, relative to some other reference point. (In this whole discussion
we discount the normal cyclic sinusoidal variation of instantaneous RF
current which is happening everywhere in the system.)

In our minds, we may choose to explain the causes of the standing wave
by resolving the net physical current into conceptual forward and
reverse components; but the physical system doesn't know what you are
thinking. To be valid, your concept must do nothing more than explain
what's seen to be happening; it cannot seek to affect it.

At the point where you have to say that a measured (and therefore
measurable) current does not flow, your concept is in trouble.

>If I present to you a black box with zero amps at one terminal
>and one amp at the other terminal, what can we conclude? One
>possibility is 1/4 wavelength of coiled up coax with an
>infinite SWR. Please ponder that and apply it to your coil
>assertion above.

Your length of coiled up coax is a FOUR-terminal device, like Richard's
transformer was. It isn't an applicable solution for this problem.

>
>The currents that are doing the flowing are the underlying
>current components, the forward current and the reflected
>current and they are close to equal. Everything you say
>about a coil is true for the forward current and the
>reflected current. It is simply not true for the standing
>wave current which is just a conceptual construct and not
>a flowing phasor at all.
>
>If you really want to accurately apply the principles you are
>asserting, you must treat the forward current and reflected
>current separately and then superpose the results.

It is entirely *your* responsibility to ensure that your postulated
forward and reflected currents obey the same circuit laws as the
physical net current. If you cannot do that, your concept fails.

>Applying
>your above principle to standing wave current is akin to
>superposing power and that's a no-no.
>
>I have never seen such a wide-spread blind spot.
>
>Take the transmission line example.
>
>----------------------------X----------------------------
> Ifor=1.0amp --> <--Iref=1.0amp
>
>There's a black box at 'X'. Inside the black box is 1/4WL

>of coiled up transmission line. The current measured at
>left of the black box is zero amps. The current measured
>at the right of the black box is 2 amps. That doesn't
>violate any laws of physics.

The laws it violates are those of logic. Your black box is not allowed
to sometimes have two terminals and sometimes need four.

>That obeys the laws of physics
>for a transmission line with reflections. You are measuring
>the currents at a current node and at a current loop. It's
>absolutely no big deal.

Sorry, I just don't see it. But what I do see are the contradictions and
inconsistencies of logic that you are forced to resort to, in order to
arrive at the conclusion you've already decided upon. I think that
proves the exact opposite.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2121. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 00:15:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <2h4Pf.56848$dW3.21654@newssvr21.news.prodigy.com>
Source record: 63682

Gene Fuller wrote:
> Do you have a reference that explains this "net standing wave current
> that does not flow"?

No, this is one of those topics that is supposed to be "obvious
to the most casual observer" and not worthy of further comment.
Why it is not obvious to you and others is beyond belief. Some-
thing terrible has happened to the educational system since 1957
when I learned all these principles at Texas A&M. I assume that
this is just a part of the "dumbing down" of the educational
system that I keep hearing so much about. Incidentally, these
concepts are obvious to Walter Maxwell.

> Does this magical current have any other interesting properties besides
> the lack of charge flow?

It's not magical but yes, it's phasor value (if it has one)
doesn't rotate which is prima facie evidence that it doesn't
flow. Any flowing phasor has a rotation of omega (2*pi*f).
The fact that standing waves don't have a rotation is proof
that they don't flow. To tell the truth, standing waves are
a product of the human mind. The forward and reflected waves
couldn't care less about standing waves. Last time I talked
to them, they didn't even know that each other existed except
for the points in the transmission line where their constructive
interference causes the wire to heat up. :-)

Surely you understand that standing waves in a transmission line
don't flow - they just stand there, which is why they are called
"standing waves". Exactly the same principle applies to standing
wave antennas.

> Do ordinary properties such as inductance and capacitance cease to
> function when dealing with "net standing wave current"?

No, but one has to exercise caution and invoke the superposition
principle to ascertain what is happening. The two traveling waves
have to be analyzed separately and then superposed to obtain valid
results. If you analyze net current without superposition, you are
doing the same thing as superposing powers, which is a known no-no.

> Do you really think it is a good idea to base detailed numerical
> analysis on these "conceptual constructs" as you call them?

All human thought is based on conceptual constructs. That's what
makes us different from the rest of the animals. If you don't
like "conceptual constructs", then go swim in a zoo pool with

the alligators. :-)

> Do you have a convenient listing of your "conceptual contructs" so that
> we can avoid these battles in the future?

Only dealing with one at the moment, Gene. The lumped circuit
model falls apart unless you first apply it to the component
currents and then superpose. The distributed network analysis
was developed to avoid that very problem. So the only valid
choices are to either use the lumped circuit analysis on the
component currents and then superpose or use the distributed
network analysis which, in the end, boil down to the same thing.
--
73, Cecil http://www.qsl.net/w5dxp

2122. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 00:43:45 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <rpip02pga3une9pq5k0i6r7896s5aal6aq@4ax.com>
Source record: 63683

On 6 Mar 2006 06:09:02 -0800, "mazerom" <romulo.maggay@wherewoof.com>
wrote:

>just wanna confirm.
>u were saying we can still get a reliable doppler shift from a
>modulated signal be it analog or digital?
>thank u so much

Yes.

The Doppler frequency equals the rate of change of the distance
expressed in wavelengths. Thus the Doppler shift is a function of
carrier frequency and relative speed difference. It doesn't matter one
bit (no pun intended) what the modulation, if any, is.

Many tactical Radars for instance use pulse/Doppler to determine both
range and rate of closure. An example that I'm most familiar with was
in the Phoenix Missile. The early variant used a pulsed klystron PA
and all analog signal processing. The pulse repetition frequency
(prf) and duty cycle were fixed and I suppose are still classified,
although the missiles are now retired (sob).

http://www.fas.org/man/dod-101/sys/missile/aim-54.htm

The Doppler is typically determined by having a bank of Doppler
filters (at i-f) and looking in each one for the returned signal.
Either the transmitter TO or the receiver LO, but not both, is then
adjusted to put the returned signal in the center filter. In the old
analog system, the VCO(s) were linearized so that the tuning voltage
was an indicator of the Doppler.

With pulse modulation this can get more complicated because there are
modulation sidebands spaced at the prf above and below the nominal
carrier frequency. If the Doppler is greater than the prf then it's
possible for a carrier sideband +/- Doppler to fall into the Doppler
filter bank and it takes some more manipulation to sort this out.

With the digital processor in the later variants the Doppler filters
were realized in software.

Now, aren't you sorry you asked? :-)

2123. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 01:03:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <RZ4Pf.19713$rL5.233@newssvr27.news.prodigy.net>
Source record: 63684

Ian White GM3SEK wrote:
> Be very careful here. We're talking about the effect of cutting the
> physically shortened wire antenna, and inserting a loading device. This
> therefore has to be a TWO-terminal device.

Yes, I realize that. Do you realize that the characteristic
impedance of a single #14 wire 30 feet above ground is 600
ohms? That pesky ground return path raises its ugly head once
again. It's impossible to install a two-terminal system 30
feet above *ground* and have it remain a two-terminal system.
It's only a two-terminal system in your mind.

> Electrical current is defined as a net rate of transfer of electrons, so
> by the very definition of the term there is literally no such thing as a
> non-flowing current (except when the current is exactly zero and the
> definition becomes moot).

You have hit the nail squarely on the head without realizing it.
A non-flowing current doesn't exist in reality but that is exactly
what you are measuring when you measure standing-wave current.
The only things that exist in reality are the forward and reflected
current. So you guys are basing your high and mighty concepts on
something that doesn't even exist in reality. No wonder you are
confused. You are measuring two currents flowing in opposite
directions at the same time and don't realize it.

> I seriously wonder if you understand what a standing wave is. It is
> simply a pattern of variation in current along the length of a
> transmission line, which is stable in time.

Nope, that's not what it is. For example, a current standing
wave on a particular transmission line is the sum of one amp
flowing in one direction and one amp flowing in the opposite
direction. Exactly what is the net charge flow when identical
currents are flowing in opposite directions? Let's see now,
this is a really tough one. One amp flowing in one direction
minus one amp flowing in the opposite direction. What could
the result possibly be? :-) Hint: think DC to see what the
net charge flow would be.

> If you pick any point along the transmission line or antenna wire, there
> is a simple net current characterized by one amplitude and one phase,
> relative to some other reference point. (In this whole discussion we
> discount the normal cyclic sinusoidal variation of instantaneous RF
> current which is happening everywhere in the system.)

I suggest you review traveling wave phasors which rotate at omega
(2*pi*f). A standing wave 'phasor' doesn't rotate at all so a standing
wave current is not moving. I'm not even sure it is technically valid
to call a standing wave current a "phasor" since it doesn't even possess
a frequency characteristic. Please think about a perfectly stationary,
non-revolving 'phasor' and then comment. Wouldn't a non-revolving
phasor be DC?

> To be valid, your concept must do nothing more than explain
> what's seen to be happening; it cannot seek to affect it.

The same thing applies to your concepts. So what do your concepts
say about a phasor with an omega(2*pi*f) equal to zero as is the
case for standing waves? Are standing waves really DC? Do they
exist at all anywhere besides the human mind?

> At the point where you have to say that a measured (and therefore
> measurable) current does not flow, your concept is in trouble.

Sorry, I have absolutely no idea what that means. Surely you have
measured zero current at a standing wave current minimum where the
forward current equals one amp and the reflected current equals
one amp. Is that zero amps in the act of flowing?

> Your length of coiled up coax is a FOUR-terminal device, like Richard's
> transformer was. It isn't an applicable solution for this problem.

If you include that pesky ground under antennas, it is. My electronics
equation book contains a formula for the characteristic impedance
of a single wire transmission line over ground. Is that invalid?
Doesn't that sound very much like a dipole wire in the air?

> The laws it violates are those of logic. Your black box is not allowed
> to sometimes have two terminals and sometimes need four.

An antenna system installed on this earth is always a four terminal
system whether you like it or not. Haven't you ever seen those diagrams
of the current return to ground from an antenna system?
--
73, Cecil http://www.qsl.net/w5dxp

2124. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 01:18:24 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <0c5Pf.29731$2c4.26947@dukeread11>
Source record: 63685

Litzendraht wrote:

>Chris W wrote:
>
>
>>Can someone tell me where I can find the housings for a 1n21 crystal
>>detector diode so I can hook it to some coax and a directional coupler?
>>I can't seem to fine one anywhere
>>
>>
>
>
>Chris,
>
> I'm not sure exactly what you need. Are you working with microwave
>frequencies?
>
>I have some type N connectors that house a 1N21 and have a BNC on the
>rear. Presumably it's simply a series diode used as a detector.
>
> John
>
>
Yep, that is exactly what I am looking for, with no luck so far. I have
some 1.2, 1.6 and 2.4 ghz antennas I want to tune.

--
Chris W
KE5GIX

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2125. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 01:29:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <wl5Pf.19727$rL5.12981@newssvr27.news.prodigy.net>
Source record: 63686

Ian White GM3SEK wrote:
> Electrical current is defined as a net rate of transfer of electrons, so
> by the very definition of the term there is literally no such thing as a
> non-flowing current ...

I'm sorry, I forgot to provide a reference for your
non-existant non-flowing current. On page 464 of
"Antennas for All Applications", by Kraus and Marhefka,
3rd edition, it shows the current on a 1/2WL dipole along
with its phase. The phase is *fixed* at zero degrees over
the entire 1/2 wavelength. So what does an RF current
with a fixed phase of zero degrees really mean? It means
that the 'phasor', if it is indeed a phasor, doesn't
flow. How could an RF current with a fixed phase of zero
degrees manage to flow? e^wt would be zero.
--
73, Cecil http://www.qsl.net/w5dxp

2126. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 02:03:59 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <vfqp02plu99vgiv9e3gf3f9rv6o4letn2j@4ax.com>
Source record: 63687

On Mon, 06 Mar 2006 13:47:04 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Ed wrote:
>>
>> The bottom line for the Rx, all it cares about since it doesn't know
>> what kind of antenna is feeding it, is the signal strength at the
>> input.... so I'd say a calibrated microvolt reading reflecting that
>> strength is not very meaningless at all. Any changes in the antenna
>> system will of course change that, but the whole point of any antenna
>> work is to maximize the signal voltage to that rx input, so I'd think a
>> calibrated reading would be extremely useful over an S meter alone.
>
>I'm afraid it might require more than simple calibration. The S-meter
>typically just shows the AGC voltage. The AGC response is only
>approximately logarithmic, and depends on the gain characteristics of
>the various stages being controlled. Gain characteristics are commonly
>very temperature sensitive, so any calibration scheme would have to take
>that into account, as well as the common deviation from true logarithmic
>response of the various stages. Calibration would also be different on
>different bands, with and without preamplifier or attenuators, etc.
>
>Of course, you could make a receiver with very nearly true logarithmic
>response, by use of one of the excellent, wide dynamic range log amps
>which are available these days. But however much you or I might like
>one, the vast majority of amateurs couldn't care less about what their S
>meter is really indicating, so they wouldn't pay the added cost for it.
>
>On top of that, most amateurs would consider a 6dB-per-S-unit meter to
>be "dead", and would rather have it wiggle more.
>
>Roy Lewallen, W7EL

Back many years ago, and probably still today, many hams would turn
away from a receiver that had what they called a "scotch" S meter. To
them a receiver that read S 6 while another receiver only read S 4 on
the same signal "had to be much better". Manufacturers started making
receivers with more lively S meters.
Looking at some of the older receivers such as the Collins had much
more realistic S meters than most today.

The calibration points that Mike did on his receiver should be valid
for any band for his antenna comparisons. An actual signal strength
measurement is not required nor would it be valid between bands. All
that is really needed is the difference measurements between the two

antennas so his calibration between points on the meter scale will be valid on any band.

A really nice instrument that would be good for signal strength measurements is an old HP 3586C selective level meter. It covers from around 100 hz to 32 Mhz and has a digital readout to 2 decimal places in dbm signal strength. Hard to use with other than a steady signal though.

73
Gary K4FMX

2127. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 02:20:14 UTC
From: richardharrison@webtv.net
Message-ID: <27174-440CEDDE-994@storefull-3257.bay.webtv.net>
Source record: 63688

Owen Duffy wrote:
"In formula 4-22b of my copy of Terman, the term on the lhs is Irhol which is the magnitude of the reflection coefficient."

In my copy, 4-22b gives the "absolute value" of the reflection coefficient (it is embraced with bars) which I believe means the "absolute value" of a number or a symbol without reference to its algebraic sign.

(4-22b):
+or- reflection coefficient=
SWR-1 / SWR+1

These formulas, (4-22a) and 4-22b) aren`t just theory. They are constantly put to use. A derivation which uses the sq rt of the ratio of refllected power to forward power for the reflection coefficient appears on page 23 of my Bird Model 43 Directional Thruline Wattmeter Manual.:
SWR = 1+reflection coefficient / 1-reflection coefficient
(Same as 4-22a)

Transmission lines are special because they enforce Zo. That is, in either direction of travel, when you apply a voltage to the low-loss line, the current which results is locked in-phase with the applied voltage. In other words, Zo is a resistance.

Best regards, Richard Harrison, KB5WZI

2128. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 02:43:22 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120psqeeu4hiad9@corp.supernews.com>
Source record: 63689

Gary Schafer wrote:
> . . .
> The calibration points that Mike did on his receiver should be valid
> for any band for his antenna comparisons. An actual signal strength
> measurement is not required nor would it be valid between bands. All
> that is really needed is the difference measurements between the two
> antennas so his calibration between points on the meter scale will be
> valid on any band.

I'm not sure I fully understand this. The difference from one S meter division to another *is* likely to be different on different bands, since it depends on the gain-vs-voltage characteristics of the controlled stages which can vary with frequency. But I do agree that he can make good comparative antenna measurements without good S meter calibration, because he has a step attenuator. By simply setting the attenuator so he gets the same S-meter reading on both antennas, S-meter calibration is completely irrelevant -- the antenna gain difference is the attenuator setting.

I find it useful, however, to be able to see the difference with reasonable accuracy just by looking at my S meter. But that does require calibration for the band in use.

>. . .

Roy Lewallen, W7EL

2129. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 03:11:05 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141701065.339363.89410@p10g2000cwp.googlegroups.com>
Source record: 63690

thanks for your comprehensive knowledge.
i intend to make my signal source stationary and would like to emply a rotating/switching antenna to produce the doppler shift..based on your explanation,it wont matter what type of signal my source is whether digital or pure CW signal.assuming a GFSK signal or spread spectrum(FH), a "reliable" doppler shift will be measured...any objection or comment sir?

thanks

2130. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 03:15:26 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <fhup02djkqchrfq42hm0cn072p930oh0ik@4ax.com>
Source record: 63691

On 6 Mar 2006 04:26:05 -0800, "mazerom" <romulo.maggay@wherewoof.com>
wrote:

>the doppler shift is fundamentally a tone frequency brought about by a
>continuous wave source moving in and out. is it possible to have
>reliable doppler shift when our source is spread spectrum or say some
>form of digital modulation?

Back around '57 or so, the beep-beeping of the Sputnik satellite was
used to track its orbit by measuring the Doppler effect.

bob
k5qwg

2131. Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 04:50:32 UTC
From: stananger <stananger@********.***>
Message-ID: <si8Pf.7557$Cc3.5452@trnddc08>
Source record: 63692

Sun's next 11-year cycle could be 50 pct stronger
Mon Mar 6, 2006 3:49 PM ET

By Deborah Zabarenko

WASHINGTON (Reuters) - Sun-spawned cosmic storms that can play havoc with earthly power grids and orbiting satellites could be 50 percent stronger in the next 11-year solar cycle than in the last one, scientists said on Monday.

Using a new model that takes into account what happens under the sun's surface and data about previous solar cycles, astronomers offered a long-range forecast for solar activity that could start as soon as this year or as late as 2008.

They offered no specific predictions of solar storms, but they hope to formulate early warnings that will give power companies, satellite operators and others on and around Earth a few days to prepare.

"This prediction of an active solar cycle suggests we're potentially looking at more communications disruptions, more satellite failures, possible disruptions of electrical grids and blackouts, more dangerous conditions for astronauts," said Richard Behnke of the Upper Atmosphere Research Section at the National Science Foundation.

"Predicting and understanding space weather will soon be even more vital than ever before," Behnke said at a telephone news briefing.

The prediction, roughly analogous to the early prediction of a severe hurricane season on Earth, involves the number of sunspots on the solar surface, phenomena that have been monitored for more than a century.

TWISTED MAGNETIC FIELDS

Every 11 years or so, the sun goes through an active period, with lots of sunspots. This is important, since solar storms -- linked to twisted magnetic fields that can hurl out energetic particles -- tend to occur near sunspots.

The sun is in a relatively quiet period now, but is expected to get more active soon, scientists said. However, there is disagreement as to whether the active period will start within months -- late 2006 or early 2007 -- or years, with the first signs in late 2007 or early 2008.

Whenever it begins, the new forecasting method shows sunspot activity is likely to be 30 percent to 50 percent stronger than the last active period. The peak of the last cycle was in 2001, the researchers said, but the period of activity can span much of a decade.

The strongest solar cycle in recent memory occurred in the late 1950s, when there were few satellites aloft, no astronauts in orbit and less reliance on electrical power grids than there is now.

If a similarly active period occurred now, the impact would be hard to predict, according to Joseph Kunches of the National Oceanic & Atmospheric Administration's Space Environment Center in Colorado.

"It's pretty uncertain what would happen, which makes this work more relevant," Kunches said.

"What we have here is a prediction that the cycle is going to be very active, and what we need and what we're of course working on is to be able to predict individual storms with a couple days or hours in advance so the grids can take the action," Behnke said.

2132. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 05:19:04 UTC
From: mcalhoun@ksu.edu
Message-ID: <duj548$mui@unix1.cc.ksu.edu>
Source record: 63693

>....[snip]....
>The measured current at the bottom of a loading coil is primarily
>standing wave current. IT IS NOT FLOWING.
>....[snip]....

My obviously-overloaded must-be-pea-sized brain sure has trouble thinking
of current which is NOT flowing, since my basic internal definition of
"current" is something like "electrons flowing past a point".

I'm enjoying reading this thread, but, what with all the difficulties
my brain is having with such subtle points, I'm NOT learning much!

--
--Myron A. Calhoun.
Five boxes preserve our freedoms: soap, ballot, witness, jury, and cartridge
PhD EE (retired). "Barbershop" tenor. CDL(PTXS). W0PBV. (785) 539-4448
NRA Life Member and Certified Instructor (Home Firearm Safety, Rifle, Pistol)

2133. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 05:51:14 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duj70inbp1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63694

A coil inevitably occupies space.

In particular, one of its dimensions is length.

Therefore it can be, and indeed for accurate modelling always should be, treated as a component having distributed L, C and R.

It just makes the mathematics somewhat more complicated. Hyperbolic functions can be involved.

Like a transmission line, a coil possesses Zo, phase-shift, attenuation and Q.

It is why my coil-loaded antenna programs provide answers in the right ball-park although I havn't a clue about the rules which govern the American ball game.

By the way, reflections and standing waves are irrelevant and don't enter the argument. Sorry Cecil!

Reg, G4FGQ.

2134. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 05:59:50 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duj7gm$lg3$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63695

Roy, you appear to have mislaid your sense of humor. Hope you recover
it soon. ;o)

Reg.

2135. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 06:35:30 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duj9jh$ng1$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63696

Myron,

I'm afraid Cecil has a fixation about standing waves and reflections.
He brings them into arguments on every possible occasion.
Nevertheless he is very convincing and manages to drag most people in.

Give your brain a rest. Visit your nearest barber shop and tune up.
You will feel much better.

Reg.

2136. Re: Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 06:49:05 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dujad1rki1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63697

Are you sure 'Earth Warming', we hear so much about, has nothing to do
with it?

2137. Re: Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 07:31:06 UTC
From: stananger <stananger@********.***>
Message-ID: <_EaPf.5022$CT.3527@trnddc04>
Source record: 63698

Reg Edwards wrote:

> Are you sure 'Earth Warming', we hear so much about, has nothing to do
> with it?

maybe its the sunspots that are causing the so called warming!

2138. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 07:55:36 UTC
From: nm5k@wt.net
Message-ID: <1141718136.011155.64650@j33g2000cwa.googlegroups.com>
Source record: 63699

>I have just had several glasses of Australian Zonte's Footstep wine.
>I can recommend it. Its name can be traced back to a marsupial which
>replaced the dinosaurs. ....

Maybe so, but the name gives me the image of a bunch of VK's stomping
around on a bunch of grapes with their bare feet. Just hoped they
washed
them first... "the feet, more importantly than the grapes" :/
MK

2139. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 07:59:01 UTC
From: richardharrison@webtv.net
Message-ID: <16154-440D3D45-967@storefull-3256.bay.webtv.net>
Source record: 63701

Myron A. Calhoun wrote:
"--I`m not learning much."

Alas, I`d wager I don`t have anything new for Professor Calhoun, but from some of the postings, what I write may be new in part to someone.

Current is defined as movement of electrons through a conductor. Obviously, an incomplete definition. As we know, there is beam current in the vacuum of a CRT, and that at r-f, skin-effect forces most electrons to the surface so that most electron movement is on or very near the surface of the conductor rather than "through" it.

When currents of equal amplitude and opposite direction meet at various points along a perfect transmission line, as they might after a perfect reflection of the incident wave, one might measure zero amps at cancellation points along the line. These would be distributed periodically as the waves, in fixed phase relation and equal and opposite currents, coincide. The measurement of zero amps occurs because the ammeter is measuring both currents simultaneously. If a directional coupler is used to measure the current in each direction separately, it will be found that the currents traveling in opposite directions are passing through each other without effect. Standing waves are more manifestation than anything else.

There was a PBS TV Channel appeal tonight. It Quoted Einstein as saying: "Nothing happens until something moves".

Incident and reflected waves move on a transmission line but standing waves are stationary and don`t move. So, it is the incident and reflected waves that make something happen. Not the stationary waves.

Circulating energy within a transmission line causes standing waves. Without a reflection, they don`t exist. Energy must be accepted by an antenna to be radiated. It is best if it is accepted on the first pass so that there are no more losses on additional passes. A perfect match at the antenna accepts energy on the first pass. A mismatched antenna produces an SWR. Magnitude of the SWR is an indication of how much mismatch there is.

Best regards, Richard Harrison, KB5WZI

2140. Re: Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 08:03:45 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dujep0$a9t$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63700

> > Are you sure 'Earth Warming', we hear so much about, has nothing
to do
> > with it?
>
>
> maybe its the sunspots that are causing the so called warming!

==========

If its nothing to do with the price of oil perhaps we can recall our
troops from the Middle East and release Saddam.

2141. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 09:37:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <UvcPf.38134$Jd.26890@newssvr25.news.prodigy.net>
Source record: 63702

mcalhoun@ksu.edu wrote:
> My obviously-overloaded must-be-pea-sized brain sure has trouble thinking
> of current which is NOT flowing, since my basic internal definition of
> "current" is something like "electrons flowing past a point".

Forward current is a traveling wave and is flowing. Reflected
current is a traveling wave and is flowing. Both can be
represented by phasors. But since they are traveling in
opposite directions, their phasors are rotating in opposite
directions and their superposed sum always add up to the
same constant phase angle = zero (in a thin wire).

Given a 1/2WL (-90 deg to +90 deg) thin wire dipole fed in
the center (at 0 deg) with 1.0 amps, the standing wave current
magnitude on the antenna is cos(theta) and the phase angle
is a constant zero degrees from end to end. Reference: Figure
14-2, page 464 of "Antennas for All Applications", by Kraus
and Marhefka, 3rd edition.

If the phasor sum of two currents is not rotating, it is not
flowing. Since phasors, by definition, change phase at a rate
of (2*pi*f) and the standing wave current doesn't change
phase at all, I don't think standing wave current is a phasor.
Standing wave current is what we measure on a standing-wave
antenna like a 75m mobile center-loaded bugcatcher.
--
73, Cecil http://www.qsl.net/w5dxp

2142. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 09:59:31 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <7QcPf.38135$Jd.3617@newssvr25.news.prodigy.net>
Source record: 63703

Richard Harrison wrote:
> If a directional
> coupler is used to measure the current in each direction separately, it
> will be found that the currents traveling in opposite directions are
> passing through each other without effect. Standing waves are more
> manifestation than anything else.

And this is equally true of standing wave antennas. Kraus goes
as far as assuming the forward and reflected currents on a
1/2 wavelength thin-wire dipole are equal in magnitude so
they must be close to equal in magnitude. I have estimated that
the magnitude of the reflected current after the round trip
to the end of the dipole and back to be in the ballpark of
90% of the forward current at the feedpoint.

This entire episode of constant current through a loading coil
is the result of thinking standing wave current flows. As you
say it is a manifestation of our thinking process and our
measurements. It doesn't flow at all.

Incidentally, a horizontal dipole above earth can be analyzed
as a single-wire transmission line system with the earth being
the ground return path. Balanis says, "Standing wave antennas,
such as the dipole, can be analyzed as traveling wave antennas
with waves propagating in opposite directions (forwards and
backwards) and represented by traveling wave currents If and Ib
in Figure 10.1(a)."

The forward current (If) through a loading coil is very close
to constant magnitude. The reflected current (Ib) back through
a loading coil is very close to constant magnitude. Their
phasor sum is the standing wave current that we measure. There
is no physics requirement that the phasor sum of the forward
and reflected currents be of equal magnitude on both ends of
the loading coil.
--
73, Cecil http://www.qsl.net/w5dxp

2143. ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 10:01:04 UTC
From: Mike Newman <mnewman@clear.net.nz>
Message-ID: <5amq02tq3q0lh1ag7d724jbk55j3fj3t5b@4ax.com>
Source record: 63704

Any advice on which grade of ferrite would be most useful for a
feeedline balun choke effective at 70 cm?
Thanks de miken zl1bnb

2144. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 10:09:35 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ifmq029p35ft797384knt4s4cncv4hqtsu@4ax.com>
Source record: 63705

On Mon, 6 Mar 2006 20:20:14 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Owen Duffy wrote:
>"In formula 4-22b of my copy of Terman, the term on the lhs is |rho|
>which is the magnitude of the reflection coefficient."
>
>In my copy, 4-22b gives the "absolute value" of the reflection
>coefficient (it is embraced with bars) which I believe means the
>"absolute value" of a number or a symbol without reference to its
>algebraic sign.
>
>(4-22b):
>+or- reflection coefficient=
>SWR-1 / SWR+1
>
Richard, you seem to be dealing with reflection coefficient as a real number when in fact it is a complex number. Your definition of |rho| is inadequate when rho is complex.

Terman actually says in the preceding text "The standing wave ratio S is one means of expressing the magnitude of the reflection coefficient; the exact relationship between the two is..."

Your statement "On page 99 of Terman`s 1955 edition of "Electronic and Radio Engineering" (my textbook was an earlier edition) is found the formula to convert the reflection coefficient into SWR or vice versa. These two parameters are innexorably locked together by formulas (4-22a) and (4-22b)." is wrong where it says "convert the reflection coefficient into SWR or vice versa" in respect of the "vice-versa" because you ignore the fact that the reflection coefficient is a complex quantity, and that the "magnitude of reflection coefficient" is not the same thing as "reflection coefficient. You cannot calculate the reflection coefficient from the SWR (except of course the special case where SWR=1).

You have cited Terman in support of your own loose words, but Terman's words are more carefully chosen and correct, yours are not, and the Terman reference does not support your misconception at all.

Owen
--

2145. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 10:13:30 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <e1dPf.38136$Jd.27016@newssvr25.news.prodigy.net>
Source record: 63706

Reg Edwards wrote:
> By the way, reflections and standing waves are irrelevant and don't
> enter the argument. Sorry Cecil!

I'm curious, Reg. With traveling wave energy flowing in both
directions through a loading coil, how do you analyze it
without taking the forward and reflected energy into account?
All my reference equations have a term with a positive exponent
for forward current and another term with a negative exponent
for reflected current.
--
73, Cecil http://www.qsl.net/w5dxp

2146. Re: ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 10:19:23 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <L6dPf.38137$Jd.30324@newssvr25.news.prodigy.net>
Source record: 63707

Mike Newman wrote:
> Any advice on which grade of ferrite would be most useful for a
> feeedline balun choke effective at 70 cm?

#68 material might work although I have never tried it.
--
73, Cecil http://www.qsl.net/w5dxp

2147. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 13:26:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pSfPf.26492$2O6.1352@newssvr12.news.prodigy.com>
Source record: 63708

Reg Edwards wrote:

> I'm afraid Cecil has a fixation about standing waves and reflections.

They are part and parcel of a distributed network analysis
and are embedded in many transmission line equations.

As far as the constant current through the coil goes:

Neglecting losses, the forward current through a coil is
constant magnitude with changing phase. The reflected
current through a coil is constant magnitude with changing
phase. Those conditions satisfy the necessary and sufficient
conditions of the laws of physics concerning a coil.

The laws of physics do not require the phasor sum of the
forward current and reflected current to be constant
magnitude. In fact, the laws of physics prohibit the
standing wave current from being equal magnitude except
at equidistant points from a current maximum or minimum.
--
73, Cecil http://www.qsl.net/w5dxp

2148. doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 14:04:13 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141740253.902052.51560@v46g2000cwv.googlegroups.com>
Source record: 63709

how accurate can we get with doppler shift when we have a digitally modulated signal as its source?compared to a unmodulated CW signals which has a tone frequency,whats the reliability of an FSK signal?

2149. 2.4GHz transceiver with FM detector ability

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 14:10:39 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141740639.803502.18390@j33g2000cwa.googlegroups.com>
Source record: 63710

hi,

im looking for tranceivers that can accept and detect fm signals at
2.4ghz.i have the numa.toshiba and winceiver but they have many
external components and pins(48).
any other chipset that you may recommend me?
thanks!

2150. Square cross-section elements?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 15:17:28 UTC
From: "n3ox.dan@gmail.com" <n3ox.dan@gmail.com>
Message-ID: <1141744648.582563.281170@j52g2000cwj.googlegroups.com>
Source record: 63711

Anyone know how to use square rod in modelling programs?

I'm sure it's a small effect, but I'm interested in the *proper* way to account for it vs. round rod.

I've used the mean radius of the inscribed and circumscribed circles and that turned out fine,
but I don't have much ability to make good gain and F/R measurements.

It seems that the corners could affect element coupling...

Should I use the circle that has the same area? Maybe the geometric mean of the radii of the inscribed and circumscribed circles?

I've got a bunch of 1/4" square rod that I want to make 435MHz yagis out of, and pretty much all web searches I could think of on square antenna elements either get zero hits for being too specific or talk about quads a lot.

The square rod is great mechanically; I can slap a piece of PVC pipe on a milling machine, mill 1/4" slots through very accurately spaced, and hold the elements in with cable ties.

Anyway, I'm just going to try the geometric mean and build another antenna, but I'm interested in any comments on this.

73,
Dan
N3OX
www.n3ox.net

2151. Re: ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 15:18:33 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <dvhPf.12215$Cc3.4319@trnddc08>
Source record: 63712

"Mike Newman" <mnewman@clear.net.nz> wrote in message
news:5amq02tq3q0lh1ag7d724jbk55j3fj3t5b@4ax.com...
> Any advice on which grade of ferrite would be most useful for a
> feeedline balun choke effective at 70 cm?
> Thanks de miken zl1bnb

Hi Miken

I've been using the tubular, high permeability ferrites designed for RFI suppression slipped over the RG-223 coax for a balun for vhf antennas. I am aware of the high loss with those ferrite tubes. I have been hoping the high permeability would present a high reactance to currents along the outside of the coax. So far, the tubes are working OK for my needs. Your mileage may vary.

Jerry

2152. Re: Square cross-section elements?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 15:37:25 UTC
From: Fred W4JLE <w4jle@w4jle.com>
Message-ID: <144cc$440da8b8$471c6203$27512@ALLTEL.NET>
Source record: 63713

As they say, measure with a micrometer, mark with a crayon, and cut with an Ax. From my limited (50 years) experience, your picking fly crap out of pepper!

The absolute perfectly modeled antenna will still have to be adjusted in it's environment. The difference between square and round tubing is insignificant unless your into the mental masturbation of caring everything out to 12 decimal places.

I am sure that someone will venture forth with an example to show how important this is at some frequency, altitude, temperature, phase of the moon and barometric pressure.
Such is the habit of the newsgroups denizens.

The reality is YOU have square tubing, use it and enjoy the contacts.

<n3ox.dan@gmail.com> wrote in message
news:1141744648.582563.281170@j52g2000cwj.googlegroups.com...
> Anyone know how to use square rod in modelling programs?
>
> I'm sure it's a small effect, but I'm interested in the *proper* way to
> account for it vs. round rod.
>
> I've used the mean radius of the inscribed and circumscribed circles
> and that turned out fine,
> but I don't have much ability to make good gain and F/R measurements.
>
> It seems that the corners could affect element coupling...
>
> Should I use the circle that has the same area? Maybe the geometric
> mean of the radii of the inscribed and circumscribed circles?
>
> I've got a bunch of 1/4" square rod that I want to make 435MHz yagis
> out of, and pretty much all web searches I could think of on square
> antenna elements either get zero hits for being too specific or talk
> about quads a lot.
>
> The square rod is great mechanically; I can slap a piece of PVC pipe on
> a milling machine, mill 1/4" slots through very accurately spaced, and
> hold the elements in with cable ties.
>
> Anyway, I'm just going to try the geometric mean and build another
> antenna, but I'm interested in any comments on this.
>
> 73,

> Dan
> N3OX
> www.n3ox.net
>

2153. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 16:07:46 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <inn0e3-ue2.ln1@p400bob.personal.cox.net>
Source record: 63718

You know I am not quite sure how to answer that..

Doppler shift is a relative thing. If you are travelling at 100kph the signal/carrier whatever relative to you is unaffected. Relative to a RX that is relatively moving either towards or away from you a shift will be apparent.

The entire transmitted spectrum will be affected, not just the "carrier". There will of course be a calculable difference in shift over the bandwidth of the signal as the lower end will shift less than the upper one more. Whether it will be a significant amount or not depends on your application. A +- 10MHz wide signal at 2.4GHz for example (100kph) would be close to an extra 1Hz of shift at the signal edges.

As your relaitive velocities approach the speed of light other problems crop up. I dont quite remember Einstein's stuff on this. Since though I doubt I'll never get to experiment with it I dont need to go through it again!

Is that what you were looking for?

Cheers Bob VK2YQA

K7ITM wrote:
>
> Bob wrote, "You'll get about +-200Hz shift with a speed of 100kph."
>
> Ahem. Care to qualify that as to the carrier or transmitted
> frequency??
>

2154. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 16:14:26 UTC
From: w8ji@akorn.net
Message-ID: <1141748066.033150.267940@v46g2000cwv.googlegroups.com>
Source record: 63714

Cecil Moore incorrectly posted:

<W8JI measured a 60 degree phase shift through a 100uH coil
<at 1 MHz. Consider that at one end of that coil the
<forward and reflected currents may be:
<Ifor = 0.55 amps at zero deg, Iref = 0.45 amps at zero deg.

<Inet = Ifor + Iref = 1 amp at zero degrees.

<At the other end of the coil, the forward and reflected
<currents may be:

<Ifor = 0.55 amps at +60 deg, Iref = 0.45 amps at -60 deg
<Inet = Ifor*cos(60) + Iref*cos(-60)

<Inet = 0.275 + 0.225 = 0.5 amps at zero deg

The above analysis clearly shows how wrong Cecil is, and how he invents reasons to support things.

I NEVER measured a current shift of 60 degrees, and I never said I measured a current difference of 60 degrees.

The phase shift I measured was in VOLTAGE. It simply shows the voltage is out of step with the current. It doesn't indicate current is shifted 60 degrees between each inductor terminal at all, and I never said it did.

The current level at each end of the inductor was, as far as I can measure with test equipment, equal.

This is another clear case of Cecil taking things out of context and mixing them with his idea that an inductor treats current differently, depending on what direction it "flows" (or whatever he is claiming, I certainly can't make sense of his arguments).

It is always better to let people directly post what they say, and not have it run through a "Cecil Moore" filter.

73 Tom

2155. Re: Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 16:25:56 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <Cs6dnTZzKOdkLpDZ4p2dnA@comcast.com>
Source record: 63715

"stananger" < stananger@********.***> wrote in message
news:si8Pf.7557$Cc3.5452@trnddc08...
> Sun's next 11-year cycle could be 50 pct stronger
> Mon Mar 6, 2006 3:49 PM ET
>
> By Deborah Zabarenko
>
> WASHINGTON (Reuters) - Sun-spawned cosmic storms that can play havoc with
> earthly power grids and orbiting satellites could be 50 percent stronger
> in
> the next 11-year solar cycle than in the last one, scientists said on
> Monday.
>
> Using a new model that takes into account what happens under the sun's
> surface and data about previous solar cycles, astronomers offered a
> long-range forecast for solar activity that could start as soon as this
> year or as late as 2008.
>
> They offered no specific predictions of solar storms, but they hope to
> formulate early warnings that will give power companies, satellite
> operators and others on and around Earth a few days to prepare.
>
> "This prediction of an active solar cycle suggests we're potentially
> looking
> at more communications disruptions, more satellite failures, possible
> disruptions of electrical grids and blackouts, more dangerous conditions
> for astronauts," said Richard Behnke of the Upper Atmosphere Research
> Section at the National Science Foundation.
>
> "Predicting and understanding space weather will soon be even more vital
> than ever before," Behnke said at a telephone news briefing.
>
> The prediction, roughly analogous to the early prediction of a severe
> hurricane season on Earth, involves the number of sunspots on the solar
> surface, phenomena that have been monitored for more than a century.
>
> TWISTED MAGNETIC FIELDS
>
> Every 11 years or so, the sun goes through an active period, with lots of
> sunspots. This is important, since solar storms -- linked to twisted
> magnetic fields that can hurl out energetic particles -- tend to occur
> near
> sunspots.
>

> The sun is in a relatively quiet period now, but is expected to get more
> active soon, scientists said. However, there is disagreement as to whether
> the active period will start within months -- late 2006 or early 2007 --
> or
> years, with the first signs in late 2007 or early 2008.
>
> Whenever it begins, the new forecasting method shows sunspot activity is
> likely to be 30 percent to 50 percent stronger than the last active
> period.
> The peak of the last cycle was in 2001, the researchers said, but the
> period of activity can span much of a decade.
>
> The strongest solar cycle in recent memory occurred in the late 1950s,
> when
> there were few satellites aloft, no astronauts in orbit and less reliance
> on electrical power grids than there is now.
>
> If a similarly active period occurred now, the impact would be hard to
> predict, according to Joseph Kunches of the National Oceanic & Atmospheric
> Administration's Space Environment Center in Colorado.
>
> "It's pretty uncertain what would happen, which makes this work more
> relevant," Kunches said.
>
> "What we have here is a prediction that the cycle is going to be very
> active, and what we need and what we're of course working on is to be able
> to predict individual storms with a couple days or hours in advance so the
> grids can take the action," Behnke said.

I saw another article, which, predicted on historical data, suggests that
the next few sunspot cycles will be weaker.

Tam/WB2TT

2156. Sunspots and "The Little Ice Age"

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 16:45:57 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <kMiPf.2359$Uc2.749@fed1read04>
Source record: 63716

Speaking of sunspots, saw a real eye opener on a TV show the other night
about "The Little Ice Age" brrrrrr
Some believe a contributing cause was low sunspot activity;
See URL:

http://en.wikipedia.org/wiki/Little_Ice_Age

The impact on humanity was incredible- See URL:
http://www2.sunysuffolk.edu/mandias/lia/little_ice_age.html
--
CL -- I doubt, therefore I might be !

2157. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 16:55:21 UTC
From: richardharrison@webtv.net
Message-ID: <4238-440DBAF9-964@storefull-3253.bay.webtv.net>
Source record: 63717

Owen Duffy wrote:
"Richard, You seem to be dealing with reflection coefficient as a real number when in fact it is a complex number."

I plead guilty.

Best regards, Richard Harrison, KB5WZI

2158. Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 17:15:06 UTC
From: Alfred Lorona <w6wqc@dslextreme.com>
Message-ID: <120rfv6k22v7s45@corp.supernews.com>
Source record: 63719

Conventional wisdom cautions against sharp bends in open wire transmission line. What is the practical/quantifiable effect of violating this rule?

How does the effect vary with the severity of the bend and does it vary with the distance along the line at which the bend occurs?

Tnx es 73, AL.

2159. Re: Sun's next 11-year cycle could be 50 pct stronger

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 17:29:14 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrne0rgrt.2jg0.bit-bucket@shell.config.com>
Source record: 63720

On Tue, 07 Mar 2006 04:50:32 GMT, stananger wrote:
> Sun's next 11-year cycle could be 50 pct stronger
<-snip->
> The prediction, roughly analogous to the early prediction of a severe
> hurricane season on Earth, ...

Translation: Academic Guessing

Jonesy

2160. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 17:50:15 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <blhr02d0ttgmbeosl17h552vnft45r852a@4ax.com>
Source record: 63721

On Tue, 07 Mar 2006 10:07:46 -0600, Bob Bob <bob3bob3@cox.net> wrote:

> I dont quite remember Einstein's stuff on this.

Hi Bob,

Actually it was Lorentz.

>Since though I
>doubt I'll never get to experiment with it I dont need to go through it
>again!

Not hard to do if you think in terms of a Klystron tube. Although it
might not directly use Doppler within the stretch of its beam current,
the tube structure is quite decidedly built for speed of light and
wavelength bunching. Hop in a car with one and you got your 100 kM/h.

Walla (as the french say) you've built your own speed trap radar
beacon.

73's
Richard Clark, KB7QHC

2161. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 17:57:24 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <e5ir02t33mce5ktajjshlev19id1gis4h0@4ax.com>
Source record: 63722

On 7 Mar 2006 06:04:13 -0800, "mazerom" <electromagnetic377@yahoo.com>
wrote:

>how accurate can we get with doppler shift when we have a digitally
>modulated signal as its source?compared to a unmodulated CW signals
>which has a tone frequency,whats the reliability of an FSK signal?

Hi OM,

You've got too many factors running through this. For one, digitally
modulated is not digital data mode (FSK). There are a world of
modulation types and some are strictly derived from a bit stream (not
all bits equal in width either). Sometimes even the carriers are
digitally derived (not a sine wave).

Doppler is going to give rise to dispersion (often a term confined
these days to fiber optics, but whose derivation arose from waveguides
- LF Optics).

73's
Richard Clark, KB7QHC

2162. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:01:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OTjPf.43229$F_3.34042@newssvr29.news.prodigy.net>
Source record: 63723

w8ji@akorn.net wrote:
> I NEVER measured a current shift of 60 degrees, and I never said I
> measured a current difference of 60 degrees.
>
> The phase shift I measured was in VOLTAGE. It simply shows the voltage
> is out of step with the current. It doesn't indicate current is shifted
> 60 degrees between each inductor terminal at all, and I never said it
> did.

The subject was Kraus' 180 degree current phase shifting coils. Here
are you exact words (and all of your words about that measurement)
quoted from qrz.com:

> By the way, I swept S12 phase with my network analyzer on a 100uH
> inductor a few hours ago while working on a phasing system. The
> phase shift through that series inductor was about -60 or -70 degrees
> on 1 MHz, crossing ZERO phase at self resonance (where loss became very
> high) near 18 MHz, and gradually increasing leading phase above 18MHz
> reaching 90 degrees and staying there well above resonance.

I apologize for missing the small detail that S12 was a voltage
measurement rather than a current measurement but I'm sure you can
see how that was an honest mistake and easy to make. You didn't
mention "voltage" at all in your posting and the context was current.
I didn't recall until your objection here today that S12 is a voltage
parameter measurement.

But that leads to a question. Why were you using voltage measurements
to try to disprove Kraus' statement about 180 degree current phase
shifting coils. Quoting from: "Antennas for All Applications", Kraus
and Marhefka, 3rd edition, page 824: "A coil (or trap) can also act
as a 180 deg (current) phase shifter as in the collinear array ...
The coil may also be thought of as a coiled-up 1/2WL element."

> The current level at each end of the inductor was, as far as I can
> measure with test equipment, equal.

That sure doesn't make technical sense. If there was no phase shift
in the current, then the voltage was lagging the current. But we know
the current lags the voltage through an inductor by as much as 90
degrees in the ideal case. If the voltage is delayed by 60 degrees,
then the current must necessarily be delayed by 60 degrees plus the
lag to satisfy the laws of physics. If you will run the experiment
using current probes, I assure you that the current will experience
more of a phase shift than the voltage, just as the laws of physics
predict. Which means there was more than a 60 deg current phase

shift through the coil which makes my argument even stronger.

Now, if you are talking only about the magnitude of the current then
of course, the current was equal at both ends of the coil because
reflected energy was absent for that measurement. IT IS THE PRESENCE
OF REFLECTED ENERGY THAT MAKES FALSE YOUR ASSERTION ABOUT NET CURRENT.
I think we are in perfect agreement about systems without reflections.

> This is another clear case of Cecil taking things out of context ...

Not out of context, Tom. The entire quote is just above. The mistake
was an honest one and easy to make. I'm only human. :-)

> and
> mixing them with his idea that an inductor treats current differently,
> depending on what direction it "flows" ...

Sorry, I never said that. An inductor treats forward waves and
reflected waves exactly the same according to the laws of physics.
Your statement is more akin to your idea that standing wave current
flows into the bottom of a coil and out the top. The coil treats all
traveling waves exactly according to the laws of physics and exactly
as you and I understand those laws of physics. I accept everything
you say about traveling wave current through a coil. My argument with
you is that a standing wave current is not a traveling wave current
and doesn't behave like a traveling wave current. That seems rather
obvious to me.

1. Just as you say, the forward traveling-wave current through a coil
is of constant magnitude. Here's what Walter Maxwell says: "If an
inductance is in series with a line that has no reflections, the current
will be the same at both ends of the inductor." All three of us agree on
that statment.

2. As in (1) above and just as you say, the reflected current through
a coil is of constant magnitude.

3. There is no law of physics that requires the standing wave
current to be equal at the top and bottom of a coil. In fact,
such a requirement violates those laws of physics. Here's what
Walter Maxwell says: "If an inductance is
in series with a line that has reflections, the current will NOT be
the same at both ends of the inductor. Consequently, circuit analysis
will not work when both forward and reflected currents are present
in a lumped circuit. When reflections are present, a current node
and a current loop can appear at separate points on an inductor
simultaneously." Judging from what he has posted earlier, Richard
Harrison agrees with those statements.

There's an EZNEC graphic at: http://www.qsl.net/w5dxp/qrzgif35.gif

Would you have us believe that 0.1+ amps is flowing into the bottom
of the coil and 0.7+ amps is flowing out of the top of the coil?

It is your concept that standing wave current flows that is the
problem. Please explain how a current with a zero phase angle
from tip to tip on a 1/2WL thin wire dipole can possibly flow without
a rotating phase angle.

> It is always better to let people directly post what they say, and not
> have it run through a "Cecil Moore" filter.

I agree, Tom, but you were not posting here so I quoted what I honestly
thought you said over on qrz.com. I quoted the same thing on qrz.com over
a number of days. You could have pointed out my mistake a lot sooner and
saved me from making it here.
--
73, Cecil http://www.qsl.net/w5dxp

2163. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:02:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <agir02deqohf9i43bhr90d4hv8ui74ot5q@4ax.com>
Source record: 63724

On Tue, 7 Mar 2006 09:15:06 -0800, "Alfred Lorona"
<w6wqc@dslextreme.com> wrote:

>Conventional wisdom cautions against sharp bends in open wire transmission
>line. What is the practical/quantifiable effect of violating this rule?
>
>How does the effect vary with the severity of the bend and does it vary with
>the distance along the line at which the bend occurs?

Hi Al,

This arises from two concerns, with all probability that neither will
bother you.

1. High power presents an arcing opportunity (very high power, pulsed
100s of KW);
2. Accuracy of determining a load.

The usual response is to confine your bends to a quarter wave sweep.
Now, if it really mattered (a lot) just imagine your problems at 160M.

73's
Richard Clark, KB7QHC

2164. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:04:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6XjPf.43231$F_3.5267@newssvr29.news.prodigy.net>
Source record: 63725

Richard Harrison wrote:

> Owen Duffy wrote:
> "Richard, You seem to be dealing with reflection coefficient as a real
> number when in fact it is a complex number."
>
> I plead guilty.

OTOH, some text I have in my library treats 'rho' as a magnitude
and 'gamma' as the complex reflection coefficient.
--
73, Cecil http://www.qsl.net/w5dxp

2165. OT for Cecil or any other ex RRAPers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:27:22 UTC
From: an_old_friend <konstans@hotmail.com>
Message-ID: <1141756042.224852.90540@j52g2000cwj.googlegroups.com>
Source record: 63626

years ago I remmebr somebody I think it was you cecil (but I have slpet since then) said something about being to build or modtify some type of CW kit for some other mode like RTTY etc, looking for the reference care to help out?

2166. Re: Square cross-section elements?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:44:09 UTC
From: "n3ox.dan@gmail.com" <n3ox.dan@gmail.com>
Message-ID: <1141757049.736957.272680@e56g2000cwe.googlegroups.com>
Source record: 63627

Fred,

You are absolutely right as far as my particular antenna goes....
changing the element size by a couple of mm doesn't do anything at all
to the antenna I'm going to build.

But for high frequencies with relatively fat elements and close
coupling, maybe it does matter.

This is a question about theory; it *is* a question about the twelfth
decimal place (or is it the third? the fourth? the second?)

I'm going to build it anyway. I'm going to get on FO-29 and make
contacts with it.

I just wonder if there's a *right* way to plug square elements into
antenna modeling programs. There certainly is a right way to account
for tapered elements.

Dan,
N3OX
www.n3ox.net

2167. Re: Square cross-section elements?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:45:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120rl6b4m08af5a@corp.supernews.com>
Source record: 63628

To model a square conductor with a round wire, use a wire diameter which
is 1.18 times the side of the square.

Roy Lewallen, W7EL

n3ox.dan@gmail.com wrote:
> Anyone know how to use square rod in modelling programs?
>
> I'm sure it's a small effect, but I'm interested in the *proper* way to
> account for it vs. round rod.
> . . .

2168. Re: Square cross-section elements?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:48:21 UTC
From: "n3ox.dan@gmail.com" <n3ox.dan@gmail.com>
Message-ID: <1141757301.100064.143430@i39g2000cwa.googlegroups.com>
Source record: 63629

thanks roy!

2169. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 18:56:18 UTC
From: w8ji@akorn.net
Message-ID: <1141757778.043926.115850@i40g2000cwc.googlegroups.com>
Source record: 63630

> > Walter Maxwell, W2DU wrote:
> >> Hi Cecil, I just today found the (QRZ.com) discussion. I agree
> >> with your position 100%. It's as simple as this:
> >>
> >> If an inductance is in series with a line that has no reflections,
> >> the current will be the same at both ends of the inductor.
> >>
> >> If an inductance is in series with a line that has reflections,
> >> the current will NOT be the same at both ends of the inductor.
> >>
> >> Consequently, circuit analysis will not work when both forward
> >> and reflected currents are present in a lumped circuit.
> >
> >> When reflections are present, a current node and a current loop
> >> can appear at separate points on an inductor simultaneously.
> >>
> >> Walt

I think it would be better if Walt represented himself, unless he ASKED you to post that Cecil.

Why not let Walt post what he thinks rather than someone else telling us what Walt thinks? We each should speak for ourselves and let other people speak for themselves. If Walt has something to say, I'm sure he will chime in.

Drumming up support by writing what we **think** others say or mean seems pretty desperate.

All of that aside, what does it matter who agrees or disagrees? Things work they way they work. All reliable measurements I've seen disagree with Cecil's theory.

I can't believe anyone with experience in RF systems would think a physically small inductor (small in terms of wavelength) would have significantly unequal currents in the inductor or in the terminals of the inductor, especially any difference caused by "reflected waves".

73 Tom

2170. Re: Reflection Loss

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:15:44 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <0lmr02921e6b36p0udd4l0j21mpl0qc3sh@4ax.com>
Source record: 63631

On Tue, 07 Mar 2006 18:04:50 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Richard Harrison wrote:
>
>> Owen Duffy wrote:
>> "Richard, You seem to be dealing with reflection coefficient as a real
>> number when in fact it is a complex number."
>>
>> I plead guilty.
>
>OTOH, some text I have in my library treats 'rho' as a magnitude
>and 'gamma' as the complex reflection coefficient.

Irespective of the symbol that may be used, and there are
unfortunately many schemes, the reflection coefficient is a complex
quantity.

Owen
--

2171. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:18:47 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dukmantgg1@f04n12.cac.psu.edu>
Source record: 63632

Owen Duffy wrote:
> On Sun, 05 Mar 2006 19:29:12 -0500, Mike Coslo
> <mremovethiscoslo@adelphia.net> wrote:
>
>> Based on another thread a few weeks back in which Horizontal dipoles
>> were being compared to Vertical antennas, and from a little chiding from
>> Roy, W7EL, I decided to do some testing on my own personal versions of
>> the two.
>>
>
> Mike, this sounds interesting.

Sorry for the delay getting back on-line...

>> My setup is:
>>
>> Icom IC-761
>> Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
>> Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.
>>
>
> Question, does the magnitude of feedline radiation from the OCF
> (presumably predominantly vertical) significantly affect qualification
> of it as a horizontal antenna?

There shouldn't be any feedline radiationn, this is oan antenna
running coax to a 4:1 balun at the feedpoint.

> Another, are the antennas coupled significantly, eg is one within the
> near field zone of the other? It is pretty hard to avoid in a
> residential block on the low bands, and it will confuse the results
> somewhat.

Almost certainly there is some interaction. It isn't a very big yard.

>> Part one of this experiment is to calibrate the S-meter. I found that
>> trying to calibrate the thing with on-air signals was a nuisance, and
>> probably wouldn't be as accurate, so I used a signal generator.
>>
>> I started out with a +20 signal, then worked my way down.
>>
>> +20 start
>> S9 -18 db
>> S8 -23 db
>> S7 -26 db
>> S6 -29 db

>> S5 -32 db
>> S4 -35 db
>> S3 -37 db
>> S2 -39 db
>> S1 -41 db
>
> Not only is the shape of the scale an issue, but the granularity or
> resolution, especially with LCD meters, or any meter where there are
> discrete steps in the meter current (such as where a D/A converter
> drives the meter movement).
>
> If you want to move beyond S meters, you could try FSM
> (www.vk1od.net/fsm) and organise some constant carriers at known
> distances / radiation angles that you could make a series of
> measurements of and produce summary statistics (median and inter
> quartile range) for each antenna type.
>
>> All in all, I would have to say that the meter tracks very well from S8
>> to S4, and the only place that wasn't that great was from S9 to S8. But
>> considering the transient nature of the signals we are receiving, I
>> would have to day that the S-meter is of reasonably close accuracy.
>>
>> With my newly calibrated S-meter I am ready to start looking at what the
>> two different antennas are doing for me. I have a coaxial switch to jump
>> back and forth between the two. My initial impressions are that there
>> are some surprises. The difference in noise levels varies by antenna by
>> band. On some bands the vertical is noisier, and on others it is the OCF
>> dipole. Especially intriguing is that on PSK mode, where I can see
>> several signals at one time, switching between antennas will attenuate
>> some signals, while other signals increase in strength. I think that my
>> vertical works better than I gave it credit for, but If I definitely
>> want *both* antennas.
>
> I described a technique for assessing the relative performance of
> mobile stations by having them transmit known constant carrier, each
> station space about 200Hz and turning circles in a carpark near each
> other, and to observe them at typical propagation distances with an
> audio spectrum analyser, watching the relative strength of the
> carriers.
>
> Your PSK setup is affording you the same type of comparison, and
> provides a ready (and recordable) assessment of the relative strength
> of the stations under the two antenna scenarios. Be great if you could
> orchestrate stations at known distances as part of an organised test.

I'll probably be doing the next best thing, which is to do a lookup of
the various callsigns as I see them.

The more I see of waterfall displays, the more I like them. I would love
to see one as standard on an HF rig.

- 73 de Mike KB3EIA -

2172. Re: OT for Cecil or any other ex RRAPers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:27:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <i8lPf.34740$_S7.17786@newssvr14.news.prodigy.com>
Source record: 63634

an_old_friend wrote:
> years ago I remmebr somebody I think it was you cecil (but I have slpet
> since then) said something about being to build or modtify some type of
> CW kit for some other mode like RTTY etc, looking for the reference
> care to help out?

It might have been me but I just don't remember, sorry.
--
73, Cecil http://www.qsl.net/w5dxp

2173. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:27:23 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dukmqr$1ag6$1@f04n12.cac.psu.edu>
Source record: 63633

Reg Edwards wrote:
> Roy says,
>>> People who blindly assume the marks on their S-meters are 6 dB
> apart
>>> should take a good look at your calibration results.
>
> ====================================
>
> The calibration of S-meters, 3dB or 6dB per S-point, has nothing to do
> with which antenna produces the stronger received signal. It is purely
> a comparison. Just use the same meter throughout the tests.

It does allow me to make a stab at comparing those two antennas. As I continue on this test, it would be nice to have something that has some sort of calibration. Otherwise we might as well just go to say "works great" or "doesn't work well for all measurements.

- 73 de Mike KB3EIA -

2174. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:44:05 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <duknq5ths1@f04n12.cac.psu.edu>
Source record: 63635

Roy Lewallen wrote:
> K7ITM wrote:
>> I fully agree with Roy's comment about the AGC-derived S-meter output.
>> As he says, the AGC characteristics are temperature dependent, and they
>> are also dependent on the particular set of active devices (and to some
>> extent the passives too) in the signal path.
>>
>> If you have access to a spectrum analyzer, chances are decent that it
>> will have a well-calibrated amplitude readout. The one I use is
>> accurate in a relative sense to a fraction of a dB over more than an
>> 80dB range, and would certainly be sensitive enough for antenna
>> comparisons. I suppose both those would be true of most modern
>> spectrum analyzers. In addition, some are quite good at determining
>> the total power in a specified frequency range, and if you can find
>> such a range with no signals, you can get a better reading on noise
>> than you're likely able to do with an S meter, or even a narrow band
>> spectral measurement.
>
> One of the most complex and difficult parts of a spectrum analyzer to
> design is the log amp which provides this stable and precisely
> logarithmic response over a wide dynamic range. There's an incredible
> amount of really ingenious work on the part of some extremely talented
> engineers in those circuits. In relatively recent times, Barrie Gilbert
> and his folks at Analog Devices have done some equally clever work in
> the design of IC log amps. It's not a trivial task by any means.

And in this case, it really isn't necessary. I simply need some
baseline to start my readings from.

Already I have noticed that different stations come in at different
strengths - presumably on the basis of propagation differences. There
may be some differences over time scales of minutes also. All I need is
a meter that allows me to derive a signal strength difference from two
different antennas. There was a need to calibrate that.

Of course, I would *love* to have a decent analyzer!!

- 73 de Mike KB3EIA -

2175. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 19:46:35 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <27or02pjdrorgjgqq5bcirbr8tun8pr8kl@4ax.com>
Source record: 63636

On Tue, 07 Mar 2006 14:18:47 -0500, Michael Coslo <mjc5@psu.edu>
wrote:

...

>>> My setup is:
>>>
>>> Icom IC-761
>>> Antenna 1 - Homebrew OCF dipole at ~ 50 feet.
>>> Antenna 2 - Butternut HF6V -ground mounted and 18 radials on the ground.
>>>
>>
>> Question, does the magnitude of feedline radiation from the OCF
>> (presumably predominantly vertical) significantly affect qualification
>> of it as a horizontal antenna?
>
> There shouldn't be any feedline radiationn, this is oan antenna
>running coax to a 4:1 balun at the feedpoint.

Mike, I understand that feedline radiation is an un-escapable
characteristic of an OCF dipole, caused by the asymmetric feed. Some
even claim it as a major advantage (eg Caroline Windom). Whilst no
dipole is perfect in that respect, the OCF dipole is less perfect, and
it may be worth modelling the thing to comment in your findings on the
probably magnitude of the contribution by the feedline.

Great project, look forward to follow-ups.

Owen
--

2176. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 20:13:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uPlPf.34748$_S7.15075@newssvr14.news.prodigy.com>
Source record: 63637

w8ji@akorn.net wrote:
> I think it would be better if Walt represented himself, unless he ASKED
> you to post that Cecil.

Walt isn't presently posting for reasons of his own.
He certainly gave me permission to quote his email. I
will ask him if he wants to defend his statements here.

> If Walt has something to say, I'm sure he will chime in.

I'm sure he will if he feels so inclined.

> Drumming up support by writing what we **think** others say or mean
> seems pretty desperate.

Those were Walt's words, not mine. (Your statement reeks of
desperation, i.e. "Please don't quote any authorities who
disagree with me.")

> All reliable measurements I've seen disagree with Cecil's theory.

Simply not true, Tom, proving once again that you don't understand
what I am saying. My "theory" explains exactly why neither you
nor W7EL could get the current at the ends of the coil to be
equal without creating a current maximum point inside the coil.

If you would just take time to understand what I am saying,
you wouldn't need to utter falsehoods about what I am saying.

The standing wave net current at each end of the coil is indeed
the same magnitude if a current maximum or current minimum point
is located inside the coil.

Walter Maxwell says: "When reflections are present, a current node
and a current loop can appear at separate points on an inductor
simultaneously." Does that sound like constant net current through
a coil? Exactly what is it about Walt's statement that you don't
understand?

> I can't believe anyone with experience in RF systems would think a
> physically small inductor (small in terms of wavelength) would have
> significantly unequal currents in the inductor or in the terminals of
> the inductor, especially any difference caused by "reflected waves".

A 75m bugcatcher coil is about 0.2% of a wavelength and so qualifies
as "physically small". The current at each end of that coil used
with an eight foot whip is nowhere near equal. I cannot believe
that anyone with experience in RF systems could utter such nonsense.

(That logic is a double-edged sword.)

I think you and others simply didn't realize that the current in a 75m mobile bugcatcher system is almost 100% a standing wave current and now you guys are desperately trying to cover up your mistake. Others have stopped responding instead of admitting their mistake. So I ask you again: How do you explain the flow of a current whose phase is unchanging (fixed at zero degrees in a thin wire dipole). Doesn't it take a rotating phasor for current to flow? That's a simple yes/no question. What do you want to bet that it goes unanswered?

Incidentally, I posted a little questionaire a couple of days ago. The response to that questionaire has been zero. Why do you reckon all the gurus are afraid to respond?
--
73, Cecil http://www.qsl.net/w5dxp

2177. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 20:38:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <RamPf.34754$_S7.25227@newssvr14.news.prodigy.com>
Source record: 63638

w8ji@akorn.net wrote:
> I think it would be better ...

I forgot to ask you, Tom, why you trimmed out all the
technical content from my posting and whinned about
what was left? So I ask you once again:

In the graphic at: http://www.qsl.net/w5dxp/qrzgif35.gif

do you really expect anyone to believe that 0.1+ amp
is flowing into the bottom of that coil and 0.7+ amp
is flowing out of the top of the coil. If, as you say,
net standing wave current actually flows, then miracles
must be possible and the coil is creating energy.

If, OTOH, net standing wave current just stands there
then such results as reported by EZNEC are just the
facts of physics. It is the forward current and
reflected current that are doing the flowing and
their magnitudes are indeed individually equal through
the coil.
--
73, Cecil http://www.qsl.net/w5dxp

2178. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 21:07:52 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <ICmPf.24247$J02.20242@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63639

Cecil Moore wrote:

[snip]

>
> I apologize for missing the small detail that S12 was a voltage
> measurement rather than a current measurement but I'm sure you can
> see how that was an honest mistake and easy to make. You didn't
> mention "voltage" at all in your posting and the context was current.
> I didn't recall until your objection here today that S12 is a voltage
> parameter measurement.
>
> But that leads to a question. Why were you using voltage measurements
> to try to disprove Kraus' statement about 180 degree current phase
> shifting coils. Quoting from: "Antennas for All Applications", Kraus
> and Marhefka, 3rd edition, page 824: "A coil (or trap) can also act
> as a 180 deg (current) phase shifter as in the collinear array ...
> The coil may also be thought of as a coiled-up 1/2WL element."

Cecil,

Interesting,

The complete quote from Kraus on page 744 in my copy of his 2nd edition is:

"A coil (or trap) can also act as a 180 degree phase shifter as in the collinear array of 4 in-phase lambda/2 elements in Fig. 16.30b. Here the elements present a high impedance to the coil which may be resonated without an external capacitance due to its distributed capacitance. The coil may also be though of as a coiled-up lambda/2 element."

* It is possible that Kraus edited the comment in the 3rd edition, but I don't see the word "current" in this quote. It is considered good editorial form to indicate clearly when you have altered the original wording, unless you are trying to make a point, I suppose.

* The coil in this case is self-resonant at the frequency of use. Do you use a self-resonant coil for your 80 meter bugcatcher? (Such a coil might be more appropriate for a pterodactyl catcher.) In any case, this has little to do with all of your rantings about loading coils. I suspect even at A&M they must have mentioned something about the characteristics of resonant circuits.

* You might have noticed the prominent role of capacitance. I believe that was the item that spurred this thread.

73,
Gene
W4SZ

2179. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 22:18:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <cFnPf.57089$dW3.19704@newssvr21.news.prodigy.com>
Source record: 63640

Gene Fuller wrote:
> Cecil Moore wrote:
>> I apologize for missing the small detail that S12 was a voltage
>> measurement rather than a current measurement but I'm sure you can
>> see how that was an honest mistake and easy to make. You didn't
>> mention "voltage" at all in your posting and the context was current.
>> I didn't recall until your objection here today that S12 is a voltage
>> parameter measurement.
>>
>> But that leads to a question. Why were you using voltage measurements
>> to try to disprove Kraus' statement about 180 degree current phase
>> shifting coils. Quoting from: "Antennas for All Applications", Kraus
>> and Marhefka, 3rd edition, page 824: "A coil (or trap) can also act
>> as a 180 deg (current) phase shifter as in the collinear array ...
>> The coil may also be thought of as a coiled-up 1/2WL element."
>
> The complete quote from Kraus on page 744 in my copy of his 2nd edition is:
>
> "A coil (or trap) can also act as a 180 degree phase shifter as in the
> collinear array of 4 in-phase lambda/2 elements in Fig. 16.30b. Here the
> elements present a high impedance to the coil which may be resonated
> without an external capacitance due to its distributed capacitance. The
> coil may also be though of as a coiled-up lambda/2 element."

> * It is possible that Kraus edited the comment in the 3rd edition, but I
> don't see the word "current" in this quote. It is considered good
> editorial form to indicate clearly when you have altered the original
> wording, unless you are trying to make a point, I suppose.

Gene, I assume you know it is common practice to insert words in
parentheses in a quotation to make the meaning clear. Such words
are understood not to be part of the quote. Since Kraus illustrated
the current, not the voltage in Figure 23-21 and earlier in figures
14-2, 14-3, and 14-4, it is rather obvious that he was talking about
a 180 degree current shift. Nowhere that I have seen does Kraus
illustrate the voltage on a standing wave antenna or talk much about
that voltage. Do you see the arrows drawn on the antenna in question?
Do you not know that an arrow drawn on a line denotes current? And
note that since all the current arrows are pointing to the right,
there is a 180 degree current phase shift in each of those phase-
shifting coils.

However, I see I should have used brackets because Kraus was already
using parentheses. I promise to do better next time.

Again, there is hardly any technical content in your reply. You have refused to respond to the questions I listed for you in an earlier posting. One wonders why you are avoiding the technical issues.

So I'll ask again. At http://www.qsl.net/w5dxp/qrzgif35.gif

is an EZNEC simulation. How do you explain the 0.1+ amp of current 'flowing' into the bottom of the coil and 0.7+ amp of current 'flowing' out of the top of the coil. How, exactly, is the coil manufacturing extra current? Hint: such a thing happens all the time in a standing wave environment because standing wave current doesn't flow. How could it possibly flow with a constant fixed zero degree phase angle?
--
73, Cecil http://www.qsl.net/w5dxp

2180. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 22:48:54 UTC
From: richardharrison@webtv.net
Message-ID: <12478-440E0DD6-1189@storefull-3258.bay.webtv.net>
Source record: 63642

Gene, W4SZ wrote:
"You might have noted the prominent role of capacitance."

Capacitance is one of the factors which include resistance, inductance, conductance and capacitance which determine the velocity factor and other characteristics of a transmission line or antenna. If the load at the end of this line does not match Zo, a reflection from it results.

A transmission line can`t be analyzed as a simple series circuit, because the current in the wires is not everywhere the same. Neither is the voltage. To analyze the line, each unit length must be examined.

Each unit length produces a phase lag in the current on its wires. The voltage lags too. This can be totaled and the interference between the incident and reflected waves deternined to find the voltage and current at any point on the transmission line,

Best regards, Richard Harrison, KB5WZI

2181. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 22:53:43 UTC
From: w8ji@akorn.net
Message-ID: <1141772023.638201.196770@j52g2000cwj.googlegroups.com>
Source record: 63641

Cecil,

What you are missing is the flux inside the coil links all the turns at light speed. When it does that, current appears at nearly the same instant of time (light speed over the spatial distance of the inductor) in all areas that are linked by flux.

The flux coupling also tries to equalize currents throughout every area of the coil.

Charge conservation also dictates that any current flowing into the coil has to be equalled by a like current flowing out the other terminal, less any displacement currents caused by stray capacitance (electric fields) to the outside world.

We cannot have a two terminal "black box" with confined fields that behaves any other way, standing waves or not.

The only flaws in having zero current phase shift and zero current difference are the less-than-perfect flux coupling and less-than-perfect confinement of the electric field. Any deviation from following perfect two-terminal rules are directly tied to the ratio of load impedance on the inductor to the stray capacitance to the outside world, and of course less than perfect flux linkage from end-to-end in the coil.

People can often better understand the limits when things are taken to an extreme.

Imagine a helical whip antenna. It is a very poorly constructed "loading coil". It has nearly infinite termination impedance at the open end, and very poor mutual coupling from turn to turn. The form factor is very distorted, far from being equal in diameter and length. The ratio of distributed capacitance to termination capacitance is very large, it can be nearly infinite.

A loading inductor or helical whip like this behaves nearly like an antenna.

The opposite would be a toroid, with a very compact form and almost total confinement of fields. Standing waves or not, as long as it is not near self-resonance it has evenly distributed current inside and at each terminal.

Most well-designed efficient short antennas use a loading coil having very nearly equal currents at each terminal. Current equality actually is a good way to determine a properly designed loading coil.

If you can stay on topic and we process only one point at a tme, I'm sure you will be able to learn how this works. If you see any flaw in how I just described inductor behavior, please point it out. Once we agree how an inductor works everything else will fall into place.

73 Tom

2182. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 22:59:02 UTC
From: w8ji@akorn.net
Message-ID: <1141772342.715920.287530@z34g2000cwc.googlegroups.com>
Source record: 63643

w...@akorn.net wrote:

W8JI:
>> I think it would be better if Walt represented himself, unless he ASKED
>> you to post that Cecil.

Cecil Moore:
>Walt isn't presently posting for reasons of his own.
>He certainly gave me permission to quote his email. I
>will ask him if he wants to defend his statements here.

Odd you say that because Walt sent me this:

Hi Tom, it's been a long time since we've talked. I'm sorry if you feel
put
upon.

I had no idea that Cecil was going to put my response on QRZ, and my
only intent
in my comment to him was that with your broad knowledge in the area of
this
issue, I found it hard to believe you didn't understand it. I was
simply
incredulous, not critical. I'm sorry you perceived it as critical, as
it
certainly wasn't intended. In addition, Cecil should not have included
that
portion which was personal in his post to QRZ.

Walt>>

That doesn't sound like Walter gave you permission to me.

73 Tom

2183. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 23:23:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <2CoPf.39509$Jd.37582@newssvr25.news.prodigy.net>
Source record: 63644

Richard Harrison wrote:
> A transmission line can`t be analyzed as a simple series circuit,
> because the current in the wires is not everywhere the same. Neither is
> the voltage. To analyze the line, each unit length must be examined.
>
> Each unit length produces a phase lag in the current on its wires. The
> voltage lags too. This can be totaled and the interference between the
> incident and reflected waves deternined to find the voltage and current
> at any point on the transmission line,

Yes, and that also applies to a real-world loading coil installed
in an environment of incident (forward) and reflected (backward)
waves. Why this is so difficult for some people to understand
is puzzling. All one has to do is use the superposition principle.
Analyze the forward wave, analyze the reflected wave, and superpose
the results.
--
73, Cecil http://www.qsl.net/w5dxp

2184. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 23:33:05 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <iLoPf.29980$2c4.6143@dukeread11>
Source record: 63645

Richard Clark wrote:

>On Sun, 05 Mar 2006 16:23:37 -0600, Chris W <1qazse4@cox.net> wrote:
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>
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>>Richard Clark wrote:
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>>
>>>On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:
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>>>>Can someone tell me where I can find the housings for a 1n21 crystal
>>>>detector diode so I can hook it to some coax and a directional coupler?
>>>>I can't seem to fine one anywhere
>>>>
>>>>
>>>>
>>>>
>>>Try googling with:
>>> 1n21 crystal mount
>>>
>>>
>>>
>>>
>>A google search for that is giving me some links but still no luck
>>finding a place I can buy one
>>
>>
>
>http://mailgate.supereva.com/misc/misc.industry.electronics.marketplace/msg04490.html
>was at the 6th entry.
>
>http://store.americanmicrosemiconductor.com/1n21.html?gclid=CNbBybHzyIMCFTFZDgodfQQv8A
>was at the right as a vendor
>
>http://www.advancedsemiconductor.com/diodes/1N/1N.shtml
>sells the diodes and a call "could" result in leads
>
>This is a product line that is probably entirely custom design, or

>salvage from equipment that is 50 years old.
>
>73's
>Richard Clark, KB7QHC
>
>
I saw no indication on those web sites that they sold the mounts.
However, I did call them all and some others that sell the the 1N21
diodes and none sale the mounts or can tell me where to get one.

--
Chris W
KE5GIX

Gift Giving Made Easy
Get the gifts you want &
give the gifts they want
One stop wish list for any gift,
from anywhere, for any occasion!
http://thewishzone.com

2185. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 23:44:09 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <le6s02pgsr76141fgui4k6etlpkj225pt1@4ax.com>
Source record: 63646

On Tue, 07 Mar 2006 17:33:05 -0600, Chris W <1qazse4@cox.net> wrote:

>>
>I saw no indication on those web sites that they sold the mounts.
>However, I did call them all and some others that sell the the 1N21
>diodes and none sale the mounts or can tell me where to get one.

I know it is not what you asked for, but a functional replacement might be a HP crystal detector that you frequently see on Ebay for less than $100. The downside is that the consequences of destroying the diode are more expensive.

Owen
--

2186. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-07 23:54:18 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <K2pPf.43328$F_3.6287@newssvr29.news.prodigy.net>
Source record: 63647

Not to mention that - you might locate 1N21-R 's - which are
Reverseable, and will leave you with the pin conductors , on BOTH
ends, if you leave off the 1/4 inch cover that is swappable for the
ends! And, of the mounts I have seen (they used for power out/mixer
diode adaptors, for "C" band (6 GHz), they have a "N" male fitting
to a "BNC" output female, BUT-- they have a wire in place from the
center to the shield of the "N" end! (this for an rf choke, at 6 GHz)
which would make then useless (unless you remove that jumper, buried in
the male end , delicate surgury, inside the connector)! Lenkurt,
Farinon, and several other outfits used these in their comm equipment!
Tho, most of the plumbing I saw, had the mounts in waveguide, these
MIGHT be an option, if you can locate them-- Jim NN7K

Chris W wrote:
> Richard Clark wrote:
>
>> On Sun, 05 Mar 2006 16:23:37 -0600, Chris W <1qazse4@cox.net> wrote:
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>>> Richard Clark wrote:
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>>>> On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:
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>>>>> Can someone tell me where I can find the housings for a 1n21
>>>>> crystal detector diode so I can hook it to some coax and a
>>>>> directional coupler? I can't seem to fine one anywhere
>>>>>
>>>>>
>>>>
>>>> Try googling with:
>>>> 1n21 crystal mount
>>>>
>>>>
>>>>
>>>
>>> A google search for that is giving me some links but still no luck
>>> finding a place I can buy one

>>>
>>
>>
>> http://mailgate.supereva.com/misc/misc.industry.electronics.marketplace/msg04490.html
>>
>> was at the 6th entry.
>>
>> http://store.americanmicrosemiconductor.com/1n21.html?gclid=CNbBybHzyIMCFTFZDgodfQQv8A
>>
>> was at the right as a vendor
>>
>> http://www.advancedsemiconductor.com/diodes/1N/1N.shtml
>> sells the diodes and a call "could" result in leads
>>
>> This is a product line that is probably entirely custom design, or
>> salvage from equipment that is 50 years old.
>>
>> 73's
>> Richard Clark, KB7QHC
>>
>>
> I saw no indication on those web sites that they sold the mounts.
> However, I did call them all and some others that sell the the 1N21
> diodes and none sale the mounts or can tell me where to get one.
>

2187. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:05:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <9n7s02l6vtapmt6itjdrkt058sfkgpelp8@4ax.com>
Source record: 63648

On Tue, 07 Mar 2006 17:33:05 -0600, Chris W <1qazse4@cox.net> wrote:

>none sale the mounts or can tell me where to get one.

Hi Chris,

Hence my comment about the availability being either custom design or cannibalized from 50 year old equipment.

It seems to me, that you can hold one half of the diode with an AGC fuse holder. Given that this style of diode often comes with a cartridge style mount that is removable to reveal two pin connectors (making the whole diode look like a miniature old-fashioned rolling pin for dough), you could buy two such diodes (yeah, expensive) and combine those cartridge mounts so that both ends can be captured by an AGC fuse holder.

73's
Richard Clark, KB7QHC

2188. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:08:00 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <818s029289valqofpmkpvp2qghuedqrd83@4ax.com>
Source record: 63650

On Tue, 07 Mar 2006 14:18:47 -0500, Michael Coslo <mjc5@psu.edu>
wrote:

>> Question, does the magnitude of feedline radiation from the OCF
>> (presumably predominantly vertical) significantly affect qualification
>> of it as a horizontal antenna?
>
> There shouldn't be any feedline radiationn, this is oan antenna
>running coax to a 4:1 balun at the feedpoint.

Hi Mike,

Not all 4:1 BalUns exhibit enough (or sometimes any) common mode Z.

73's
Richard Clark, KB7QHC

2189. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:08:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KfpPf.43332$F_3.7908@newssvr29.news.prodigy.net>
Source record: 63649

w8ji@akorn.net wrote:
> What you are missing is the flux inside the coil links all the turns at
> light speed. When it does that, current appears at nearly the same
> instant of time (light speed over the spatial distance of the inductor)
> in all areas that are linked by flux.

I am not missing the flux linkage. What you are missing is the known phase lag that the current undergoes compared to the voltage. Whatever voltage phase shift you measured (60 degrees), the lagging current phase shift is likely to be more than double that value. Hint: an ideal inductor forces the current to lag the voltage by 90 degrees. If the current propagates at the speed of light, the voltage propagates much faster than the speed of light so it can lead the current. Please explain that one to us.

> The flux coupling also tries to equalize currents throughout every area
> of the coil.

A well known fact. It applies to the forward current and reflected current, not to the standing wave current which is not flowing into or out of the coil at all. There is no net charge flow in a standing wave and therefore, no net current flow. At any point on a 1/2WL thin wire dipole, the only thing happening is that the energy is migrating between the H-field and the E-field. There is zero energy flow away from that point in either direction. That's why the phase angle of the reflected current is constant and fixed at zero degrees. It is simply not flowing. What is flowing is the forward and reflected component currents which indeed to obey all the rules you have listed here.

> Charge conservation also dictates that any current flowing into the
> coil has to be equalled by a like current flowing out the other
> terminal, less any displacement currents caused by stray capacitance
> (electric fields) to the outside world.

Absolutely no argument here. Even assuming the coil is lossless, the magnitude of the forward current flowing into the coil is equal to the magnitude of the forward current flowing out of the coil. Likewise for the reflected current. So this part of your argument is somewhat irrelevant. What you seem to be missing is the phase shift in those component currents.

> We cannot have a two terminal "black box" with confined fields that
> behaves any other way, standing waves or not.

If a piece of transmission that is an appreciable percentage of a wavelength is coiled into a coil that is an appreciable percentage of a wavelength, why is it surprising to you that the coil responds somewhat like the piece of wire that it replaces? The answer is that you assumed the proof in your argument. It goes something like this:

A lumped inductance doesn't have any magnitude change or phase shift through the coil. A bugcatcher loading coil is a lumped inductance. Therefore, a bugcatcher loading coil doesn't have any magnitude change or phase shift through the coil. The first proof that you offered some months ago was that the lumped inductance modeled in EZNEC didn't show any magnitude change or phase shift. Do you see the fallacy in your thought processes? You assumed the proof in your argument and you are still falling into that logical trap. Is it any surprise that a software program shows no magnitude change or phase shift? Please open up your mind and think the unthinkable. You will be rewarded.

> The only flaws in having zero current phase shift and zero current
> difference are the less-than-perfect flux coupling and
> less-than-perfect confinement of the electric field.

There you go, assuming the proof in your argument. A lossless non-radiating transmission line doesn't even obey those rules. Why should you expect a real-world coil made from that transmission line wire to obey those rules? Before you respond with the 2-terminal Vs 4-terminal argument, please realize that a horizontal #14 wire 30 ft. above ground is considered to be a single-wire transmission line with a Z0 of around 600 ohms. Thus, a horizontal dipole is simply a lossy transmission line.

If you would like, I can quote Balanis on all of this.

> Any deviation from
> following perfect two-terminal rules are directly tied to the ratio of
> load impedance on the inductor to the stray capacitance to the outside
> world, and of course less than perfect flux linkage from end-to-end in
> the coil.

Assuming the proof again. 1/4WL apart in a lossless, non-radiating transmission line, the standing wave currents are wildly different. Why are you surprised when we take that 1/4WL of wire, wind it into a coil, and achieve a lot of the same conditions?

> If you can stay on topic and we process only one point at a tme, I'm
> sure you will be able to learn how this works.

I'm certainly game for that. We can start by agreeing that the forward current through a loading coil has the same magnitude at each end of the coil but suffers a phase shift through the coil. You measured a voltage phase shift of 60 degrees through a 100uH coil at 1 MHz. Since the current lags the voltage in a coil, the current phase shift has to have been greater than 60 degrees, maybe even 120+ degrees depending upon the Q of the coil. Tom, even I can measure the traveling wave current phase shift in a 75m bugcatcher coil so please don't insult my intelligence by asserting that a phase shift doesn't exist.

If a coil could eliminate phase shifts, Intel would be using them in
their computer busses. The truth is, a coil in a computer bus
increases the phase shift, not decreases it. So please give us a
break on that irrational concept. You have been fooled by your model.
--
73, Cecil http://www.qsl.net/w5dxp

2190. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:10:24 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <QhpPf.43335$F_3.18269@newssvr29.news.prodigy.net>
Source record: 63651

P.S., might be worth a shot- try :Allied Communications Equipment Supply
- (712) 322-2725 - 325 W South Omaha Brg Rd, Council Bluffs, IA 51501

and, inquire about a diode detector for a "LENKURT - MODEL 76 radio",
a long shot, I know, but THAT was what was used to alarm low power
output, in those units, and other items!! Allied specializeds in
communications equipment for commercial users, especially , supplying
obsolete equiptment! not cheap, but - at least they have this stuff!
Jim NN7K

Jim - NN7K wrote:
> Not to mention that - you might locate 1N21-R 's - which are
> Reverseable, and will leave you with the pin conductors , on BOTH
> ends, if you leave off the 1/4 inch cover that is swappable for the
> ends! And, of the mounts I have seen (they used for power out/mixer
> diode adaptors, for "C" band (6 GHz), they have a "N" male fitting
> to a "BNC" output female, BUT-- they have a wire in place from the
> center to the shield of the "N" end! (this for an rf choke, at 6 GHz)
> which would make then useless (unless you remove that jumper, buried in
> the male end , delicate surgury, inside the connector)! Lenkurt,
> Farinon, and several other outfits used these in their comm equipment!
> Tho, most of the plumbing I saw, had the mounts in waveguide, these
> MIGHT be an option, if you can locate them-- Jim NN7K
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> Chris W wrote:
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>>> On Sun, 05 Mar 2006 16:23:37 -0600, Chris W <1qazse4@cox.net> wrote:
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>>>>> On Sun, 05 Mar 2006 09:20:20 -0600, Chris W <1qazse4@cox.net> wrote:
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>>>>>> Can someone tell me where I can find the housings for a 1n21
>>>>>> crystal detector diode so I can hook it to some coax and a
>>>>>> directional coupler? I can't seem to fine one anywhere
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>>>>> Try googling with:
>>>>> 1n21 crystal mount
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>>>> A google search for that is giving me some links but still no luck
>>>> finding a place I can buy one
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>>> http://mailgate.supereva.com/misc/misc.industry.electronics.marketplace/msg04490.html
>>>
>>> was at the 6th entry.
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>>> http://store.americanmicrosemiconductor.com/1n21.html?gclid=CNbBybHzyIMCFTFZDgodfQQv8A
>>>
>>> was at the right as a vendor
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>>> http://www.advancedsemiconductor.com/diodes/1N/1N.shtml
>>> sells the diodes and a call "could" result in leads
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>>> This is a product line that is probably entirely custom design, or
>>> salvage from equipment that is 50 years old.
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>>> 73's
>>> Richard Clark, KB7QHC
>>>
>>>
>> I saw no indication on those web sites that they sold the mounts.
>> However, I did call them all and some others that sell the the 1N21
>> diodes and none sale the mounts or can tell me where to get one.
>>

2191. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:29:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <uzpPf.43339$F_3.24291@newssvr29.news.prodigy.net>
Source record: 63653

w8ji@akorn.net wrote:
> That doesn't sound like Walter gave you permission to me.

Tom, I can't believe you have the balls to lie about such a thing
when it is so easy to prove otherwise. Your behavior is unbelievably
unethical. I simply cannot believe you are willing to go to these
lengths to satisfy that insatiable ego of yours.

W5DXP asks Walt:
And Walt, would you mind if I add just your following comments
to the thread on qrz.com and credit them to you? I trimmed out
any reference to me or Tom.

Walter Maxwell earlier wrote:
> If an inductance is in series with a line that has no reflections,
> the current will be the same at both ends of the inductor.
>
> If an inductance is in series with a line that has reflections,
> the current will NOT be the same at both ends of the inductor.
>
> Consequently, circuit analysis will not work when both forward
> and reflected currents are present in a lumped circuit.

Walter Maxwell replied to the request:
> Fine with me, Cecil, but you might also add the point about the loop
> and node appearing simultanously when reflections are present--sorta
> puts the icing on the cake.
>
> Walt

Tom, not only did Walt give me permission, he pointed out something
that I had left out.

You are being unbelievably unethical. You could have handled this
in a private email to me but you are apparently willing to drag
Walter Maxwell through the mud in order to spread your old wives'
tales. Good grief, will you stop at nothing? I'm going to have to
sign off and cool down.
--
73, Cecil http://www.qsl.net/w5dxp

2192. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:29:45 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141777785.451920.324400@j33g2000cwa.googlegroups.com>
Source record: 63652

exactly sir but im referring to the spectral content of the signal its carrier and sidebands for that matter.how significant will be the doppler shift of its spectral components other than its carrier signal?thanks

2193. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:32:32 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141777952.686591.29990@z34g2000cwc.googlegroups.com>
Source record: 63654

yes sir.thanks for this

2194. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:32:51 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141777971.631608.194860@p10g2000cwp.googlegroups.com>
Source record: 63655

yes sir.thanks for this

2195. Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:37:20 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-3801D8.18373207032006@news-rdr-02.rdc-kc.rr.com>
Source record: 63656

My center of a 3.8 Mhz doublet is at about 35 feet and am going to drop the ends from 30 feet to about 10 to 15 feet. Just wondering if it will make all that much difference if any?

2196. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:46:46 UTC
From: w8ji@akorn.net
Message-ID: <1141778806.352135.21840@j52g2000cwj.googlegroups.com>
Source record: 63657

Cecil,

All personal issues and insults aside, before anyone does anything with any of this they would have to have a good feel for how an inductor behaves.

Do you agree or disagree with my post about how an inductor behaves?

73 Tom

2197. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:46:52 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <p-ydncPsX6jmtJPZnZ2dnUVZ_tidnZ2d@comcast.com>
Source record: 63658

NOPE!

At those heights it will be an excellent antenna for close-in work.
Close in means ~100 miles daytime and up to ~600 miles nights and evenings.

Big Endian wrote:

>
> My center of a 3.8 Mhz doublet is at about 35 feet and am going to drop
> the ends from 30 feet to about 10 to 15 feet. Just wondering if it will
> make all that much difference if any?

2198. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 00:57:28 UTC
From: nm5k@wt.net
Message-ID: <1141779448.549209.64220@j52g2000cwj.googlegroups.com>
Source record: 63659

It will slightly decrease the performance. I'd keep the ends
as high as possible if you want the max performance.
MK

2199. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:11:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nbqPf.43350$F_3.27493@newssvr29.news.prodigy.net>
Source record: 63660

w8ji@akorn.net wrote:
> That doesn't sound like Walter gave you permission to me.

He did give me permission. In a fit of anger, I made a posting
that proves that fact. Upon reflection, after cooling down by
taking a walk, I should not have made that posting and I have
canceled it. Walter Maxwell is my friend and I don't want to
drag the great man into your junk yard dog war. I respect
him too much for that and regret making that posting. I just
hope it didn't make it off my news-server before I canceled it.
It is gone from my news-server.
--
73, Cecil http://www.qsl.net/w5dxp

2200. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:22:22 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141780942.651667.77390@i40g2000cwc.googlegroups.com>
Source record: 63661

What's the formula for Doppler shift? Why would you think it does not apply exactly to all the spectral components of your signal? Do you think you are dealing with a nonlinear system when you combine doppler shift with a complex signal?

Cheers,
Tom

mazerom wrote:
> exactly sir but im referring to the spectral content of the signal its
> carrier and sidebands for that matter.how significant will be the
> doppler shift of its spectral components other than its carrier
> signal?thanks

2201. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:25:36 UTC
From: Dave <noone@nowhere.com>
Message-ID: <jsSdnWmK1sUPr5PZRVn-vQ@crocker.com>
Source record: 63662

the answer is... it depends. most cheap ham style doppler direction finders with electrically rotated arrays may have trouble locking on to the doppler shift if it is modulated in some ways. modulation frequencies that cause phase shifts near the simulated rotatation frequency will be worst as they will likely be detected by the simple audio phase detector as the doppler signal and throw it off. if you use a better demodulator that is matched to the type of signal you are tracking and still can produce an output that is locked to the phase of the rotating array then it will work. this means if it is a wideband digital signal you will have to lock on to the base signal and still differentiate the rotation caused phase shift on top of it... not always an easy job.

"mazerom" <electromagnetic377@yahoo.com> wrote in message
news:1141701065.339363.89410@p10g2000cwp.googlegroups.com...
> thanks for your comprehensive knowledge.
> i intend to make my signal source stationary and would like to emply a
> rotating/switching antenna to produce the doppler shift..based on your
> explanation,it wont matter what type of signal my source is whether
> digital or pure CW signal.assuming a GFSK signal or spread
> spectrum(FH), a "reliable" doppler shift will be measured...any
> objection or comment sir?
>
> thanks
>

2202. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:26:21 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141781181.178501.184740@j52g2000cwj.googlegroups.com>
Source record: 63663

Hmmm... Gee, I could connect a spectrum analyzer channel to each of
two different antennas and get a continuous real-time comparison of the
signals and noise them.

Cheers,
Tom

2203. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:46:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <LHqPf.43353$F_3.41672@newssvr29.news.prodigy.net>
Source record: 63664

w8ji@akorn.net wrote:
> All personal issues and insults aside, before anyone does anything with
> any of this they would have to have a good feel for how an inductor
> behaves.

I just asked my dog if she has a good feeling about how an inductor
behaves. She wagged her tail in affirmation. Now please explain why
feelings are important to this discussion.

> Do you agree or disagree with my post about how an inductor behaves?

I disagree with you about how an inductor behaves in a standing
wave environment. I agree with Walter Maxwell who said:

"If an inductance is in series with a line that has reflections, the
current will NOT be the same at both ends of the inductor."

Sorry about that, but Walt gave me permission to quote him. Note the
emphasis on 'NOT' in his statement. A 75m bugcatcher mobile system
is a *STANDING WAVE ANTENNA*, so no, I don't agree with you at all
as enumerated in my previous posting. Please don't ask me the same
question over and over. I am not going to change my mind until
you provid valid evidence to the contrary and so far, all you have
done is prove your ethics leave something to be desired.
--
73, Cecil http://www.qsl.net/w5dxp

2204. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 01:52:39 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141782759.623687.59040@v46g2000cwv.googlegroups.com>
Source record: 63665

hello dave,

same thought here..i wish to use 2.4ghz as my carrier and a doppler
shift in the kHz range.
any recommendation on good FM receivers in this frequency?
thanks

2205. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 02:06:08 UTC
From: David Shrader <W1MCE@comcast.net>
Message-ID: <oeidnQbqhpuSoZPZnZ2dnUVZ_sKdnZ2d@comcast.com>
Source record: 63667

mazerom wrote:

> exactly sir but im referring to the spectral content of the signal its
> carrier and sidebands for that matter.how significant will be the
> doppler shift of its spectral components other than its carrier
> signal?thanks
>

Doppler shift is applicable to all frequency components of a signal.

It is a percentage change of the base frequenc[ies] as a function of the rate of closure or divergence between an observer and the originator of the signal.

So, for FM it applies to the carrier frequency at ONE doppler shifted value. It applies to the individual frequency [secondary] components as another doppler shifted component for each frequency. In practice, the doppler shifted frequenc[ies] among the secondary components are extremely small when compared to the prime frequency.

For spread spectrum, it is applicable to ALL frequencies.
For AM, it is applicable to ALL frequencies.
For SSB, it is applicable to ALL frequencies.
For CW it is applicable to ALL frequencies
For FM/NBFM/WBFM, it is applicable to ALL frequencies.
For unmodulated carriers, it is applicable to ALL frequencies.
For audio, it is applicable to ALL frequencies.
For ...., it is applicable to ALL frequencies.

2206. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 02:06:31 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <3res02d1d1ej31mgrj8mti7fpqe4fd6621@4ax.com>
Source record: 63666

On Wed, 08 Mar 2006 01:46:19 GMT, Cecil Moore <mycall@arrl.net> wrote:

>w8ji@akorn.net wrote:
>> All personal issues and insults aside, before anyone does anything with
>> any of this they would have to have a good feel for how an inductor
>> behaves.
>
>I just asked my dog if she has a good feeling about how an inductor
>behaves. She wagged her tail in affirmation. ...

Oh no Cecil, not another citation!

Owen
--

2207. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 02:08:39 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <440e3ca7$0$7322$39cecf19@news.twtelecom.net>
Source record: 63668

Hey folks, they have a word that's used occasionally that I think might
be appropriate here, it is "chill".

As in chill out.

Things are getting more out of hand than normal.

Some of you are adults, please start acting that way.

Some people have been trying, possibly poorly, to be funny, forgive them.

I could say more, but you get the idea.

tom
K0TAR

2208. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 02:43:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <JxrPf.43359$F_3.9143@newssvr29.news.prodigy.net>
Source record: 63669

Tom Ring wrote:
> Some of you are adults, please start acting that way.

Tom, I apologize profusely to everyone for losing my temper.
I regret that every time it happens but that time never seems
to be the final time. I canceled my posting made in anger. But
please note that me losing my temper has absolutely no bearing
on objective technical facts and has absolutely no effect at
all on the validity of my technical arguments. Galileo probably
lost his temper in front of the priests who placed him under
house arrest. That made absolutely no difference in the
scientific facts that he was asserting at the time.

I am presenting my thoughts in front of the internet gurus
in much the same manner as Galileo did to the priests. Hopefully,
they will listen better than the priests did and not put me under
house arrest. (But I have my Colt 45 ready just in case. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2209. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 03:12:17 UTC
From: richardharrison@webtv.net
Message-ID: <21271-440E4B91-1080@storefull-3254.bay.webtv.net>
Source record: 63671

Chris W., KE5GIX wrote:
"Can somone tell me where O can find the housings hor a 1n21 crystal detector so I can hook it to some coax and a directional coipler?"

From the appearance of the crystal, I`d think a fuse clip and a tube socket pin could be used to make connections.

Richard Clark had a good idea to look for ancient military surplus. These diodes were also prevalent in commercial microwave sets which are now long pbsolete.

It reminded me I have a military TS-1268/U "Crystal Rectifier Test Set" made to test these crystals in 1945. It`s been stowed away for years, but I broke it out and tested a crystal, It uses a 1.5-volt dry-cell to measure forward and reverse currents on a meter (0-1 ma). The battery was still good and the 1n23 tested OK.
It is obviously ddurable so I`m going to keep it.

Maybe Fair Radio Sales or some such surplus dealer has exactly what you want. My stock of test diodes comes in lead cylinders.

Best rehards, Richard Harrison, KB5WZI

2210. Re: ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 03:16:58 UTC
From: Mike Newman <mnewman@clear.net.nz>
Message-ID: <sfis02hfvkc9po1855k2vbjscm0qgosiov@4ax.com>
Source record: 63670

On Tue, 07 Mar 2006 15:18:33 GMT, "Jerry Martes"
<j.jmartes@verizon.net> wrote:

>
>"Mike Newman" <mnewman@clear.net.nz> wrote in message
>news:5amq02tq3q0lh1ag7d724jbk55j3fj3t5b@4ax.com...
>> Any advice on which grade of ferrite would be most useful for a
>> feeedline balun choke effective at 70 cm?
>> Thanks de miken zl1bnb
>
> Hi Miken
>
> I've been using the tubular, high permeability ferrites designed for RFI
>suppression slipped over the RG-223 coax for a balun for vhf antennas. I am
>aware of the high loss with those ferrite tubes. I have been hoping the
>high permeability would present a high reactance to currents along the
>outside of the coax. So far, the tubes are working OK for my needs.
>Your mileage may vary.
>
> Jerry
>
That's exactly what I intended doing, feeding a moxon rectangle in
this case, my win4nec model gives 50+0.1j.

Given the correct grade of ferrite, it should probably be ok on
UHF.

But how to to determine the effectiveness? Maybe a small bead with a
couple of turns to pick up voltage nodes on the coax feedline, with
and without the choke balun beads.

MikeN

2211. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 04:07:12 UTC
From: richardharrison@webtv.net
Message-ID: <21272-440E5870-229@storefull-3254.bay.webtv.net>
Source record: 63672

CORRECTIION

The test set is a TS-268/U.

Best regards, Richard Harrison, KB5WZI

2212. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 04:34:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <J9tPf.42101$Jd.5525@newssvr25.news.prodigy.net>
Source record: 63673

w8ji@akorn.net wrote:
> That doesn't sound like Walter gave you permission to me.

I have backtracked to try to find out what happened. I asked
Walt's permission to post the following:

> Walter Maxwell wrote:
>> If an inductance is in series with a line that has no reflections,
>> the current will be the same at both ends of the inductor.
>>
>> If an inductance is in series with a line that has reflections,
>> the current will NOT be the same at both ends of the inductor.
>>
>> Consequently, circuit analysis will not work when both forward
>> and reflected currents are present in a lumped circuit.

He agreed but suggested I also include his fourth statement which
followed the above three statements.

>> When reflections are present, a current node and a current loop
>> can appear at separate points on an inductor simultaneously.

When I went back to copy and paste bottom-up from his email
in order to include his fourth assertion, I inadvertently copied
one too many sentences at the top. It is true that I didn't have
Walt's permission to publish that extra first sentence in his email.
I regret that accidental mistake and wish I could take it back.
And of course, neither Walt nor anyone else in the universe agrees
with me 100%.

But please note that accidentally including that first sentence doesn't
change the technical content of Walt's other four assertions which should
be allowed to stand as is until further notice.
--
73, Cecil http://www.qsl.net/w5dxp

2213. Re: 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 05:43:22 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <UauPf.625$wp.509@fed1read12>
Source record: 63674

"west" <westley@tampabay.rr.com> wrote in message
news:q7pNf.48851$g47.20547@tornado.tampabay.rr.com...
> Just purchased a (tri-band 2, 1.25, .7 meters) Kenwood TH-F6A HT and was
> wondering what I should use for a base antenna that will be over 60ft high
> (bet I'll get tons of intermod). One thought is to purchase the best
> tri-bander available or, perhaps there is too much compromise with an
> all-in-one. Would you use a dual bander and a mono, which band is the dual
&
> which the mono or 3 monos? Of course with anything other than a
tri-bander,
> a triplexer will be needed. Oh what trying decisions a ham must make! Any
> comments most welcomed.
>
> 73s
> west
> AF4GC
>
>

I like j-poles, made of copper pipe. Their appeal to me is their absolute ruggedness and the freedom from any counterpoise. Just last week, I looked at my oldest one (~12 yrs) and it looked good as new except for a light patina. Aluminum would be nearly dust at that age. In addition, I have developed a method of connectorizing a j-pole that is more secure than just a single pop-rivet.

On your tower, you can mount two up and one down, with the two up being the 1.25m and the 70 cm. (I think there will be the least interaction between that pair -- just a hunch.) Putting the 2m j-pole down is unlikely to hurt its pattern much; I did some informal experiments with masts near a j-pole and I had to get to less than a two-inch separation distance to affect either transmit or receive.

If I can't get 1:1 as my VSWR low point, adding a cap in series with the feed usually fixes it (100pF, or so).

You may not need all three antennas. A 2m j-pole is a reasonably good match at 70 cm, although the major 70 cm. lobe is not aimed at the horizon. There is radiation to the horizon, however, evidenced by the fact that I just raised a repeater on Palomar Mountain, about 42 miles to the north, using 0.5W into that durable 12 year-old copper j-pole, cut for 146 MHz. The antenna is only about 20 feet above the ground but I am clear of obstructions to the north, which helps. (At 60 ft, you will be clear of obstructions, too, you lucky devil.)

The up-side of using the 2m j-pole as a dual-bander is that you can dispense with the triplexer and run two cables up the mast.

The down-side of reading this far is that you now have additional choices -- not what you wanted, eh?

73,
John
KD6VKW

2214. Re: 3 Monos or a Tribander?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 06:11:41 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <89ss02dse89v4fqvvkfmcpos8ad6eiclco@4ax.com>
Source record: 63675

On Wed, 01 Mar 2006 22:21:10 GMT, "west" <westley@tampabay.rr.com>
wrote:

>Just purchased a (tri-band 2, 1.25, .7 meters) Kenwood TH-F6A HT and was
>wondering what I should use for a base antenna that will be over 60ft high
>(bet I'll get tons of intermod). One thought is to purchase the best
>tri-bander available or, perhaps there is too much compromise with an
>all-in-one. Would you use a dual bander and a mono, which band is the dual &
>which the mono or 3 monos? Of course with anything other than a tri-bander,
>a triplexer will be needed. Oh what trying decisions a ham must make! Any
>comments most welcomed.

West,

Some thoughts:

The economics of feedline(s) might tilt the solution in favour of a
single triband antenna with LDF4-50 or better, though you will
probably want a very short flylead to the handheld. (Note that the
loss in 100' of RG213 at load VSWR=1.5 is 5dB at 70cm, whereas LDF4-50
is 1.5dB, and the loss in a 5' tail of RG58C/U under similar
conditions is 0.7dB.) If you only want to work repeaters and your path
is good enough, losses might not be an issue. (Remember though that 5W
handhelds get really hot on full power.) Is LDF4-50 overkill for a
handheld? It might be more appropriate than with a higher powered
transmitter.

If intermods are an issue (as handhelds have less than adequate front
end selectivity), do the repeaters use CTCSS... at least that helps
prevent the transceiver breaking mute all day and night. Does the
radio have a real rx attenuator that can help with intermods, to you
have sufficient rx signal strength to be able to use it?

At least you are not intending using a discone. Handhelds rarely work
well on external broad antennas (for intermod reasons), and even the
multiband antennas can be a challenge for handhelds.

Owen
--

2215. Re: ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 06:15:27 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <3EuPf.5356$CT.3859@trnddc04>
Source record: 63576

"Mike Newman" <mnewman@clear.net.nz> wrote in message
news:sfis02hfvkc9po1855k2vbjscm0qgosiov@4ax.com...
> On Tue, 07 Mar 2006 15:18:33 GMT, "Jerry Martes"
> <j.jmartes@verizon.net> wrote:
>
>>
>>"Mike Newman" <mnewman@clear.net.nz> wrote in message
>>news:5amq02tq3q0lh1ag7d724jbk55j3fj3t5b@4ax.com...
>>> Any advice on which grade of ferrite would be most useful for a
>>> feeedline balun choke effective at 70 cm?
>>> Thanks de miken zl1bnb
>>
>> Hi Miken
>>
>> I've been using the tubular, high permeability ferrites designed for RFI
>>suppression slipped over the RG-223 coax for a balun for vhf antennas. I
>>am
>>aware of the high loss with those ferrite tubes. I have been hoping the
>>high permeability would present a high reactance to currents along the
>>outside of the coax. So far, the tubes are working OK for my needs.
>>Your mileage may vary.
>>
>> Jerry
>>
> That's exactly what I intended doing, feeding a moxon rectangle in
> this case, my win4nec model gives 50+0.1j.
>
> Given the correct grade of ferrite, it should probably be ok on
> UHF.
>
> But how to to determine the effectiveness? Maybe a small bead with a
> couple of turns to pick up voltage nodes on the coax feedline, with
> and without the choke balun beads.
>
> MikeN

Hi Mike

Since you are acknowledging the existence of 1/10th of an ohm of inductive
reactance, at UHF, you are way beyond my level of accuracy in any
measurement of effectiveness.
But, I once measured the inductance across the ferrite tube by connecting
the impedance "meter" to the exposed ends of the coax braid that was
threaded thru the center of the ferrite. Then I removed the ferrite and
repeated the test with the ferrite removed.

Roy Lewallen has an excellant paper written to show how to properly evaluate baluns. I have the paper saved and will be happy to share it with you. It is almost a *must read* since it is so thouough and informative.

Jerry

2216. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 06:31:42 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1141799502.565371.230380@z34g2000cwc.googlegroups.com>
Source record: 63577

> Yep, that is exactly what I am looking for, with no luck so far. I have
> some 1.2, 1.6 and 2.4 ghz antennas I want to tune.
> Chris W
> KE5GIX

Chris,

If it's exactly what you're looking for, I have a hand full of these things. It's a Sage 1021H adapter and has a front end that looks like a UG 21 and a BNC on the rear. The BNC unscrews and you install the 1N21 like a .22 round , and screw it back together. It's not a tiny assembly and measures 62mm in length (just shy of 2.5 inches).

I found it listed on line at A-Comm Electronics and they say it's good to 12.4 kmc.

If it's something you really could use, I could send you a couple at a fair price.

But I'm surprised that anyone nowdays would be using a full sized type N connector for anything other than moderate powered transmitting.

John

.

2217. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 06:54:12 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <p5vs0216rr1hviium9q2tq4lbp4frgfd9c@4ax.com>
Source record: 63578

On 7 Mar 2006 17:52:39 -0800, "mazerom" <electromagnetic377@yahoo.com>
wrote:

>hello dave,
>
>same thought here..i wish to use 2.4ghz as my carrier and a doppler
>shift in the kHz range.
>any recommendation on good FM receivers in this frequency?
>thanks

To give you 10% resolution will require it have its local oscillator
accurate (and stable) to one part in 100 Billion (of course, same goes
for the source). Hmm, maybe Bang & Olufson....

Laser interferometry would be simpler, and probably cheaper too.

73's
Richard Clark, KB7QHC

2218. Re: ferrite balun grades

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 07:07:13 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <m40t02ht61qon7cdaputihgfbf2du7oo6s@4ax.com>
Source record: 63579

On Wed, 08 Mar 2006 16:16:58 +1300, Mike Newman <mnewman@clear.net.nz>
wrote:

>But how to to determine the effectiveness? Maybe a small bead with a
>couple of turns to pick up voltage nodes on the coax feedline, with
>and without the choke balun beads.

Hi Mike,

Good start, keep it simple. This presumes you have the material, but
don't know its type (s/b #43 or #64):

Take a short transmission line from your rig;
pass the center conductor through ONE bead;
and bring it back and short it to the shield;
transmit on the 5W range for as long as it takes to read SWR.

You should get a reading of roughly 1.3:1 to 2:1 for the right
material - and - depending on how long you held down the transmit, it
should get toasty warm to blistering hot.

73's,
Richard Clark, KB7QHC

2219. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 07:15:50 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <fp0t02prv2uq2kv1ptbksdaf79cj06elma@4ax.com>
Source record: 63580

On 7 Mar 2006 16:29:45 -0800, "mazerom" <electromagnetic377@yahoo.com>
wrote:

>.how significant will be the
>doppler shift of its spectral components other than its carrier
>signal?thanks

How much dispersion can you tolerate? "Significance" is an emotional
measure (which is to say it isn't a measure at all). If you cannot
quantify what you mean by this, no one can offer how significant it
is. I've a career of measuring very small differences out to 12
places. What was significant to me was a matter of utter indifference
to 99.999999% of the population - if that many.

73's
Richard Clark, KB7QHC

2220. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 07:32:31 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <cb1t02pm4g5sri28d501ibgicspep58r78@4ax.com>
Source record: 63581

On Wed, 08 Mar 2006 00:29:14 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Walter Maxwell earlier wrote:

By accounts, Walt works both sides of the street for them.

This Hustle & Flow of posts redefines the Academy award to
"It's Hard Out Here for the Pimps"

2221. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 09:18:40 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-7FDFC3.03185108032006@news-rdr-02.rdc-kc.rr.com>
Source record: 63582

In article <1141779448.549209.64220@j52g2000cwj.googlegroups.com>,
nm5k@wt.net wrote:

> It will slightly decrease the performance. I'd keep the ends
> as high as possible if you want the max performance.
> MK

I'd like to but I'm a little concerned about next door, if you know what
I mean. The poles are on the lot line and in the front yard, but in the
summer they are pretty well shielded by trees, in winter they stand out
their naked in the wind.

2222. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 10:16:33 UTC
From: w8ji@akorn.net
Message-ID: <1141812993.768076.158930@e56g2000cwe.googlegroups.com>
Source record: 63583

>> Do you agree or disagree with my post about how an inductor behaves?

>I disagree with you about how an inductor behaves in a standing
>wave environment. I agree with Walter Maxwell who said:
>"If an inductance is in series with a line that has reflections, the
>current will NOT be the same at both ends of the inductor."

Then we can't go further with this Cecil, unless you can accurately explain WHY the behavior of an inductor changes when it is in an antenna, rather than in some other system where impedances are the same or very similar. It seems that Ian, Reg, Roy, and several others including myself all believe an inductor works the same way. If you convince one of us we are in error the others will surely follow!

If you refuse to discuss the behavior or electrical characteristics of the component you are talking about, there really isn't anything we can talk about. In that case I suggest you leave my name out of things, and I'll do the same for you.

When you are ready to talk about the root problem, I'll try to be here.

73 Tom

2223. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 11:41:38 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <6hNpk4NyLsDEFAnW@ifwtech.co.uk>
Source record: 63585

wrote:
>
>>> Do you agree or disagree with my post about how an inductor behaves?
>
>>I disagree with you about how an inductor behaves in a standing
>>wave environment. I agree with Walter Maxwell who said:
>>"If an inductance is in series with a line that has reflections, the
>>current will NOT be the same at both ends of the inductor."
>
>Then we can't go further with this Cecil, unless you can accurately
>explain WHY the behavior of an inductor changes when it is in an
>antenna, rather than in some other system where impedances are the same
>or very similar. It seems that Ian, Reg, Roy, and several others
>including myself all believe an inductor works the same way.

And also, if the inductively loaded antenna is designed by the "antenna as transmission line" method (as used by Boyer and ON4UN for example) it clearly shows that the loading inductance is simply there to cancel the net capacitive reactance - in other words, it behaves in exactly the same way as you would in any other circuit.

The irony is that Boyer *does* use the concept of reflected traveling waves in his basic explanation of how monopole antennas work. The difference is that he understood how to do it without tying himself in knots.

'Antenna Transmission Line Analog: a key to understanding antennas' by Joseph M Boyer (W6UYH, SK 1988). Ham Radio, April 1977 and May 1977.

>If you
>convince one of us we are in error the others will surely follow!
>
Slip of the fingers there, Tom - there aren't any "followers" in that particular company. We are all fiercely independent-minded individuals, absolutely determined to do our own thinking and to get it right.

It is true that we agree on a lot of things, but there's only one reason for that: because physical reality is the same in Oregon, England and Scotland as it is in Georgia. There is a very high probability that it's the same in Texas too.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2224. Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 11:48:29 UTC
From: Ken C <cprstn54@nospam.att.net>
Message-ID: <osgt02tusgqvbra0lofhgc4qeppb595v83@4ax.com>
Source record: 63584

If I put a T-connector on my feedline and a 50 ohm dummy load on each leg, does the transmitter see 50 ohms, or 25 ohms?

If one leg is not being used, what should be put there (if anything) for the transmitter to see 50 ohms if the impedance of the other leg is 50 ohms?

Ken KC2JDY

2225. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 12:17:08 UTC
From: Jim <K4SQR@juno.com>
Message-ID: <1141820228.146191.318710@j33g2000cwa.googlegroups.com>
Source record: 63586

Ken C wrote:
> If I put a T-connector on my feedline and a 50 ohm dummy load on each
> leg, does the transmitter see 50 ohms, or 25 ohms?
>
> If one leg is not being used, what should be put there (if anything)
> for the transmitter to see 50 ohms if the impedance of the other leg
> is 50 ohms?
>
> Ken KC2JDY

Ken;

50 ohms.

Jim

2226. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 12:48:09 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <g9kt02lf030eqde2kjd4f6qvffgrtbg4v1@4ax.com>
Source record: 63587

On Wed, 8 Mar 2006 11:41:38 +0000, Ian White GM3SEK
<gm3sek@ifwtech.co.uk> wrote:

[snip]
>
>It is true that we agree on a lot of things, but there's only one reason
>for that: because physical reality is the same in Oregon, England and
>Scotland as it is in Georgia. There is a very high probability that it's
>the same in Texas too.

Careful Ian, remember that our President calls Texas home, so the
probability might not be so high after all. ;-)

ps. I crossed paths with Joe Boyer a couple of times when we were
both at Hughes.

2227. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 12:56:44 UTC
From: richardharrison@webtv.net
Message-ID: <9127-440ED48C-13@storefull-3253.bay.webtv.net>
Source record: 63589

Alfred Lorona wrote:
"Conventional wisdom cautions against sharp bends in open wire transmission line."

One does not want to create an impedance bump. Ed Laport shows how to make right-angle turns. See page 396 of "Radio Antenna Engineering". It works fine with 100 KW.

Best regards, Richard Harrison, KBB5WZI

2228. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:03:45 UTC
From: w8ji@akorn.net
Message-ID: <1141823025.751401.183670@j33g2000cwa.googlegroups.com>
Source record: 63588

GM3SEK writes:

<<And also, if the inductively loaded antenna is designed by the
"antenna
as transmission line" method (as used by Boyer and ON4UN for example)
it
clearly shows that the loading inductance is simply there to cancel the

net capacitive reactance - in other words, it behaves in exactly the
same way as you would in any other circuit.

The irony is that Boyer *does* use the concept of reflected traveling
waves in his basic explanation of how monopole antennas work. The
difference is that he understood how to do it without tying himself in
knots.>>

I received an email from someone (an attempted reply mail bounced) who
thinks his mobile antenna is "90-degree resonant". The the upper
portion of the antenna is physically 5 degrees long, the lower section
10 degrees, and the loading coil placed between the two about 1 degree
long. He has tied himself in a knot picturing the system as being
"90-degree" resonant, and thinking the inductor must make up the
missing 74 degrees of antenna height.

He also, as many people do, visualizes an inductror model where current
winds its way through the copper from end to end. His exact words
being: "Also, in colis(sic) of significant wire length the propagation
time of current in the wire is still approximately 1 E-9
seconds/foot."

These are the very conceptual problems I was trying to address at:
http://www.w8ji.com/mobile_and_loaded_antenna.htm

Without a detailed and correct understanding of how both inductors and
electrically short antennas behave, it's easy to go down the wrong
path.

Compounding the problem are incorrect measurement methods. One person
placed a link over a long solenoid coil and incorrectly assumed that
link would measure current in one small area of the coil, another took
off with that flawed measurement and revised his whole refelected wave
analysis to make the current maximum in the center of the loading
inductor!

It would be nice to clean this all up, but it will only happen if every
steps back and looks at the system one small step at a time. It seems
some have reached an unbendable conclusion without even understanding

how an inductor works. It is critical to understand what goes on inside an inductor if we are going to talk about current inside the component.

It think that is the root of the disagreement, and until it becomes the focal point the myths about standing waves, a 10 degree tall antenna being 90 degrees, and current flowing in two directions at the same instant of time at one point in the system will continue.

We need to talk about the inductor, or this will go nowhere and in another three years pop right back up.

73 Tom

2229. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:05:22 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <05lt02htc7ecuuns8csmks2t52k083msvu@4ax.com>
Source record: 63590

On 8 Mar 2006 04:17:08 -0800, "Jim" <K4SQR@juno.com> wrote:

>
>Ken C wrote:
>> If I put a T-connector on my feedline and a 50 ohm dummy load on each
>> leg, does the transmitter see 50 ohms, or 25 ohms?
>>
>> If one leg is not being used, what should be put there (if anything)
>> for the transmitter to see 50 ohms if the impedance of the other leg
>> is 50 ohms?
>>
>> Ken KC2JDY
>
>Ken;
>
>50 ohms.

This might be a solution to all of our mismatch problems. Repeal
Ohm's law.

2230. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:17:07 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <nPAPf.28651$W42.5406@trnddc02>
Source record: 63591

"Jim" <K4SQR@juno.com> wrote in message
news:1141820228.146191.318710@j33g2000cwa.googlegroups.com...
>
> Ken C wrote:
>> If I put a T-connector on my feedline and a 50 ohm dummy load on each
>> leg, does the transmitter see 50 ohms, or 25 ohms?
>>
>> If one leg is not being used, what should be put there (if anything)
>> for the transmitter to see 50 ohms if the impedance of the other leg
>> is 50 ohms?
>>
>> Ken KC2JDY
>
> Ken;
>
> 50 ohms.
>
> Jim
>
I'd be interested in seeing your thinking on this.

Dale W4OP

2231. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:21:07 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141824067.008337.253470@j33g2000cwa.googlegroups.com>
Source record: 63592

hmm..im sorry for that incomplete sentence..
anyway, i plan to employ a doppler direction finding system using a fix 2.4GHz as my signal source and a switch-antenna receiving system with a doppler shift of say 50khz.an optimum arrangement for a 4-antenna array is that they are spaced quarter wavelngth from each other which give us a radius of abuot .1767λ or close to 1.25". to get this doppler shift,the antenna should rotate for 31.33khz...any comment on this or suggestion or objection sir?thanks

2232. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:31:56 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <y8edndBLQ_FWQZPZnZ2dnUVZ_t6dnZ2d@comcast.com>
Source record: 63593

Where I live what I do on my property is my business as long as I comply with the local zoning requirements.

My neighbors don't get a vote on how I install and operate my station. The town assessor will NOT grant an abatement because my neighbors live next to a ham station [property value argument].

I run 1 KW when required. My phones are 100% clean. My TV's are 100% clean. My computer is 100% clean. My computer sound system is 100% clean. My stereo system is 100% clean.

Don't be concerned about next door. Just make sure your station and house electronics are clean.

DD, W1MCE

Big Endian wrote:

SNIPPED
>
>
> I'd like to but I'm a little concerned about next door, if you know what
> I mean. The poles are on the lot line and in the front yard, but in the
> summer they are pretty well shielded by trees, in winter they stand out
> their naked in the wind.

2233. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:36:11 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <pfGdnbD0Tp5RQJPZnZ2dnUVZ_s2dnZ2d@comcast.com>
Source record: 63594

Ken C wrote:

> If I put a T-connector on my feedline and a 50 ohm dummy load on each
> leg, does the transmitter see 50 ohms, or 25 ohms?
>
> If one leg is not being used, what should be put there (if anything)
> for the transmitter to see 50 ohms if the impedance of the other leg
> is 50 ohms?
>
> Ken KC2JDY

Case #1 two 50 ohms in parallel plus a transmission line > 25 to 100 ohms and everything in between [VSWR = 2:1]. If there are no transmission line effects [very short line] then 25 ohms.

Case #2 one 50 ohm = 50 ohms including transmission line effects.

2234. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:36:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <N5BPf.43595$F_3.40107@newssvr29.news.prodigy.net>
Source record: 63595

w8ji@akorn.net wrote:
> Then we can't go further with this Cecil, ...

That's simply not true. We can take this discussion to its logical conclusion if you are not afraid to continue it in logical order at a logical starting point.

Starting with coils is like looking for your keys under the street light, instead of where you lost them, because that's where the light is better.

Coil theory is not the problem. Standing wave current theory is the problem. Let's discuss the problem.

> If you refuse to discuss the behavior or electrical characteristics of
> the component you are talking about, there really isn't anything we can
> talk about.

I'm not refusing to discuss anything as long as it is taken in logical order. Our disagreement extends much farther back into fundamental technical principles than just the subject of coil function. We actually may have no technical disagreement about coils. I believe our basic disagreement involves standing wave current, not coils, so standing wave current should be the topic of this initial discussion. For that, we need to first agree on the 1/2WL thin wire model of a dipole.

Let's see what we can agree on. Can we agree on the following pertaining to a 1/2 wavelength thin wire dipole?

The net current in a standing wave antenna is a standing wave. The net current displayed by EZNEC for a standing wave antenna is a standing wave. The net standing wave current is the phasor sum of the forward current traveling wave and the reflected current traveling wave. The principle of superposition applies to the two component waves. If we superpose the forward current traveling wave and the reflected current traveling wave, we obtain the net standing wave current.

Let's take for instance, that 1/2WL thin wire dipole. The standing wave current distribution and phase appears in Figure 14-2 in Kraus and Figures 1.15 and 4.8 in Balanis. If the current at the feedpoint is 1 amp, the net standing wave current equals cosine(x) where 'x' is the distance in degrees away from the feedpoint.

This topic of discussion will most likely reveal that our fundamental point of disagreement is standing wave current and not coils at all.

So which points above do you agree/disagree with?

References to Kraus are from "Antennas for All Applications",
Kraus and Marhefka, 3rd edition.

References to Balanis are from "Antenna Theory", Balanis,
2nd edition.
--
73, Cecil http://www.qsl.net/w5dxp

2235. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 13:49:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ZhBPf.43596$F_3.33660@newssvr29.news.prodigy.net>
Source record: 63596

Ian White GM3SEK wrote:
> And also, if the inductively loaded antenna is designed by the "antenna
> as transmission line" method (as used by Boyer and ON4UN for example) it
> clearly shows that the loading inductance is simply there to cancel the
> net capacitive reactance - in other words, it behaves in exactly the
> same way as you would in any other circuit.

If that is true, you guys shouldn't have any difficulty proving me wrong
and sending me back to the woodshed once and for all. If the above is not
entirely true, please don't put me under house arrest until I present the
truth as I see it. And certainly, call me on anything that is wrong.

If you will keep listening with an open mind, I think I can show you
that the words, "clearly", "simply", and "exactly", in your above
statement are not entirely correct.
--
Ian, no one has explained the antenna currents reported by EZNEC at:

http://www.qsl.net/w5dxp/qrzgif35.gif

How can 0.1+ amp of current be 'flowing' into the bottom of the coil
and 0.7+ amp of current be 'flowing' out of the top of the coil. It's
been days now and no one has offered an explanation.
--
73, Cecil http://www.qsl.net/w5dxp

2236. Re: Non-theoretical, practical and probably stupid question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 14:31:44 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dumpsg$1ene$1@f04n12.cac.psu.edu>
Source record: 63597

tclay@qmc.ph.msstate.edu wrote:
>> It seems necessary to "waste" as much as 60 feet of rope in either
>> side. If I support the center insulator, then double that.
>>
>> Is there a better way?
>
> I'm not sure what the problem is, yes, it takes a bunch of rope if
> you can't climb the tree.
>
> I usually don't bother with pulleys as I prefer to get the antenna
> up as high as possible. You will lose 15-20 feet of height (or more)
> using a pulley compared to not.

Hi Tor,

I don't use pulleys either, but I'm not sure I uunderstand why you would
lose height with them.

- 73 de Mike KB3EIA -

2237. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 14:36:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <kZBPf.57228$dW3.53202@newssvr21.news.prodigy.com>
Source record: 63598

w8ji@akorn.net wrote:
> I received an email from someone (an attempted reply mail bounced) who
> thinks his mobile antenna is "90-degree resonant". The the upper
> portion of the antenna is physically 5 degrees long, the lower section
> 10 degrees, and the loading coil placed between the two about 1 degree
> long. He has tied himself in a knot picturing the system as being
> "90-degree" resonant, and thinking the inductor must make up the
> missing 74 degrees of antenna height.

Here's a question for you, Tom. Assume for reference that the forward current phase is at 90 deg and the reflected current phase is at -90 deg at the tip of the antenna and then backtrack the two phasors to the feedpoint. The phasor currents are known to rotate in opposite directions. The question for you is: What is the phase of the forward current originating at the feedpoint? What is the phase of the reflected current returning to the feedpoint?

Seems you are trying to tell us that the phase of the forward current at the feedpoint is at a phase angle of 90-16 = 74 degrees and the phase of the reflected current is -90+16 = -74 degrees at the feedpoint since, as you say, the antenna is 16 degrees long.

Assuming angle F is the feedpoint phase of the forward current and angle R is the feedpoint phase of the reflected current:

We know that net current at the feedpoint is Ifor*cos(F) + Iref*cos(R)

According to your theory the net current would be

Ifeedpoint = Ifor*cos(74) + Iref*cos(-74) = .028(Ifor+Iref)

Since the feedpoint impedance is inversely proportional to the feedpoint current, the feedpoint impedance for your loaded vertical would be a lot higher than the feedpoint impedance for a 1/4WL vertical but we know it actually goes in the opposite direction. How do you resolve that contradiction?

> He also, as many people do, visualizes an inductror model where current
> winds its way through the copper from end to end. His exact words
> being: "Also, in colis(sic) of significant wire length the propagation
> time of current in the wire is still approximately 1 E-9
> seconds/foot."

For an ideal inductance, the voltage propagates through the coil at the speed of light. The current lags the voltage by as much as 90 degrees in an ideal inductance.

For an ideal capacitance, the current propagates through the coil
at the speed of light. The voltage lags the current by as much as
90 degrees in an ideal capacitance.

> It seems
> some have reached an unbendable conclusion without even understanding
> how an inductor works.

It is not your understanding of how an inductor works that is the
problem. It is your misunderstand of how standing wave current
works that is the problem. Let's discuss the problem on the other
thread in progress.

> We need to talk about the inductor, or this will go nowhere and in
> another three years pop right back up.

You are looking for your keys under the street lamp instead of where
you lost them, because the light is better. The inductor is NOT the
problem. Your misunderstanding of standing waves is the problem.

You fully understand how a coil works in the presence of a traveling
wave. You do not understand how a coil works in the presence of
standing waves, not because you lack understanding of a coil, but
because you lack understanding of standing wave current. If you
keep avoiding your area of misunderstanding, this will go nowhere.
--
73, Cecil http://www.qsl.net/w5dxp

2238. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 14:47:18 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dumqpl$1o2a$1@f04n12.cac.psu.edu>
Source record: 63599

Richard Clark wrote:
> On Tue, 07 Mar 2006 14:18:47 -0500, Michael Coslo <mjc5@psu.edu>
> wrote:
>
>>> Question, does the magnitude of feedline radiation from the OCF
>>> (presumably predominantly vertical) significantly affect qualification
>>> of it as a horizontal antenna?
>> There shouldn't be any feedline radiationn, this is oan antenna
>> running coax to a 4:1 balun at the feedpoint.
>
> Hi Mike,
>
> Not all 4:1 BalUns exhibit enough (or sometimes any) common mode Z.

Okay. Perhaps I might better characterize my experiment as a comparison of a vertical and an OCF dipole of indeterminate vertical vs horizontal performance. I was under the impression from the designers of this flavor of dipole that they were not radiating from the feedline unless you wanted that "feature". In that case you would feed the antenna with balanced line. Certainly the antenna doesn't seem to be radiating RF from anywhere but the antenna bits.

p.s. forgive the spelling, I am using a beta of Thunderbird for my newsgroups, and it seems to have a few quirks that make it hard to see what I have written!!

- 73 de Mike KB3EIA -

2239. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 15:22:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dumsr0$k3j$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63601

Has it ever occurred to you guys that a coil is a coil wherever it is
used and always behaves in the same way.

2240. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 15:22:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eFCPf.57235$dW3.22839@newssvr21.news.prodigy.com>
Source record: 63600

w8ji@akorn.net wrote:
> It seems
> some have reached an unbendable conclusion without even understanding
> how an inductor works.

It certainly seems you have reached an unbendable conclusion without even understanding how an inductor works in a standing wave environment. The following reference, emailed to me by a kind reader of this newsgroup, says exactly what I have been trying to say. I propose that a 75m bugcatcher loading coil is a "velocity inhibited slow-wave helical transmission line resonator". The only difference between it and a 1/4WL resonant Tesla coil is the radiating part of the antenna. I'll quote a few excerpts.

http://www.ttr.com/corum/index.htm

[begin quote]
Tesla Coils and the Failure of Lumped-Element Circuit Theory
by Kenneth L. Corum and James F. Corum, Ph.D.
ï¿½ 1999 by K.L. Corum and J.F. Corum

In all of those [lumped] circuit models the current is analytically presupposed to be uniformly distributed along the wire in the coil ... There are no standing waves on a lumped element circuit component.

However, a true Tesla coil (circa 1894) is a velocity inhibited slow-wave helical transmission line resonator: ... one needs transmission line analysis (or Maxwell's equations) to model these electrically distributed structures. Lumped circuit theory fails because it's a theory whose presuppositions are inadequate. Every EE in the world was warned of this in their first sophomore circuits course.

This phenomenon is decisive. It occurs only on distributed resonators: it is impossible with any lumped circuit element! (The current has the same value at every point along a lumped-element.) To understand what is happening, consider a cylindrical helical coil of height H. The base is always forced to be a voltage node (it's grounded). The top is always a relative voltage loop at the odd quarter-wave resonances and a voltage node at the even (half-wave) resonances. These boundary conditions constrain the mode patterns on the structure (called spatial harmonics). We assert that velocity inhibited partially coherent forward and reflected RF traveling waves form interference patterns on the coil.
[end quote]

"Lumped circuit theory fails because it's a theory whose presuppositions are inadequate." Seems some EEs have forgotten that sophmore year warning.

Using lumped circuit theory in the presence of standing waves is a form of "assuming the proof" or "begging the question" and is simply invalid.

Quoting relevant material from Balanis: "The current and voltage distributions on open-ended wire antennas are similar to the standing wave patterns on open-ended transmission lines. ... Standing wave antennas, such as the dipole, can be analyzed as traveling wave antennas with waves propagating in opposite directions (forward and backward) and represented by traveling wave currents If and Ib ..."

--

73, Cecil http://www.qsl.net/w5dxp

2241. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 15:30:09 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141831809.329629.82880@i39g2000cwa.googlegroups.com>
Source record: 63602

how can you say that seconday components are "EXTREMELY SMALL"
compared to the prime frequency when your signal is in fact a
broadband?
and you forgot one;
For UWB,it's applicable to ALLLLLL frequencies

2242. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 15:37:07 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141832226.955965.108550@u72g2000cwu.googlegroups.com>
Source record: 63603

another thing...you're not answering the question..im not asking if its possible for two EM source to produce doppler shift when at least one is moving relative to the other because a 5th grader knows that.
what im asking is how significant.....

dont answer if u intend to insult!

2243. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 15:44:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <iZCPf.57241$dW3.10834@newssvr21.news.prodigy.com>
Source record: 63604

Reg Edwards wrote:
> Has it ever occurred to you guys that a coil is a coil wherever it is
> used and always behaves in the same way.

The coil always behaves in the same way. Unfortunately, the models
used to explain the operation of the coil don't work in the same
way. Please see:

http://www.ttr.com/corum/index.htm
--
73, Cecil http://www.qsl.net/w5dxp

2244. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:01:58 UTC
From: Dan Richardson <k6mhe>
Message-ID: <tqvt021470bc6dvq5tt9o0kfvtgb4mi2c7@4ax.com>
Source record: 63605

On Wed, 08 Mar 2006 09:47:18 -0500, Michael Coslo <mjc5@psu.edu>
wrote:

> I was under the impression from the designers of this
>flavor of dipole that they were not radiating from the feedline unless
>you wanted that "feature".

It is pretty well known that an OCFD is a bear when it comes to common
mode current on the feedline. Usally requiring more than one common
mode choke to tame the sucker.

Danny, K6MHE

2245. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:05:00 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <g30u02pgafnue8tl4e2kf5ditc22d1g6v5@4ax.com>
Source record: 63606

On Wed, 08 Mar 2006 09:47:18 -0500, Michael Coslo <mjc5@psu.edu>
wrote:

> I was under the impression from the designers of this
>flavor of dipole that they were not radiating from the feedline unless
>you wanted that "feature".

Hi Mike,

This is not outside the realm of possibility. Whose antenna is it?

73's
Richard Clark, KB7QHC

2246. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:08:09 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <m70u02p74tci7i2dpo3mth6jvagp3thv5v@4ax.com>
Source record: 63607

On 8 Mar 2006 05:21:07 -0800, "mazerom" <electromagnetic377@yahoo.com>
wrote:

>...any comment on this or
>suggestion or objection sir?thanks

Perhaps later, first, how much dispersion can you tolerate?

73's
Richard Clark, KB7QHC

2247. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:24:26 UTC
From: "n3ox.dan@gmail.com" <n3ox.dan@gmail.com>
Message-ID: <1141835066.693220.100190@j33g2000cwa.googlegroups.com>
Source record: 63608

Ken,

I guess that you are using the T-connector simply as an elbow? If this is the case, and you put a 50 ohm load on one leg, you should leave the other leg *open* to make the impedance be about 50 ohms. The T-connector will give you a little bit of capacitance due to the concentric conductors on the unused leg, but it will make little to no difference until you hit UHF or so.

If you put 50 ohms on one leg and a 50 ohm load on the other, Amos's post will apply. The impedance seen by the transmitter will depend on the length of transmission line between the T and your transmitter. This is because the line between the T and your transmitter is no longer properly terminated at the T end.

With very short transmission lines, the situation is just like parallel resistors. This means that the two loads on the T will share the power.

This is good for things like phased yagis, but you wouldn't want to hook an antenna to one port and a dummy to another...

Dan,
N3OX
www.n3ox.net

2248. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:41:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <6PDPf.44803$Jd.43007@newssvr25.news.prodigy.net>
Source record: 63609

Cecil Moore wrote:

> Reg Edwards wrote:
>> Has it ever occurred to you guys that a coil is a coil wherever it is
>> used and always behaves in the same way.
>
> The coil always behaves in the same way. Unfortunately, the models
> used to explain the operation of the coil don't work in the same
> way. Please see:
>
> http://www.ttr.com/corum/index.htm

Dang Reg, I forgot to post the quote from that web page. Here it is:

"Lumped element representations for coils require that the current
is uniformly distributed along the coil - no wave interference and
no standing waves can be present on lumped elements."

Therefore, lumped element representations for coil CANNOT be
used to analyze standing wave antennas. I wasn't the first
to say that. Using a lumped element representation for a
coil in a standing wave environment is "assuming the proof".

Here's more information along those same lines.

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf
--
73, Cecil http://www.qsl.net/w5dxp

2249. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 16:53:16 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <rbeNasW8vwDEFAm7@ifwtech.co.uk>
Source record: 63611

Cecil Moore wrote:
>Ian White GM3SEK wrote:
>> And also, if the inductively loaded antenna is designed by the
>>"antenna as transmission line" method (as used by Boyer and ON4UN for
>>example) it clearly shows that the loading inductance is simply there
>>to cancel the net capacitive reactance - in other words, it behaves
>>in exactly the same way as you would in any other circuit.
>
>If that is true, you guys shouldn't have any difficulty proving me wrong
>and sending me back to the woodshed once and for all. If the above is not
>entirely true, please don't put me under house arrest until I present
>the truth as I see it. And certainly, call me on anything that is wrong.
>

The only problem for the rest of us is that you seem to have unlimited
energy and time :-)

>If you will keep listening with an open mind, I think I can show you
>that the words, "clearly", "simply", and "exactly", in your above
>statement are not entirely correct.

There is one typo in that statement: I posted it part-way through
changing from "In other words, you use the inductance in exactly the
same way as you would in any other circuit" to "In other words, it [the
inductance] behaves in exactly the same way as it does in any other
circuit". I stand by both of those statements.

>--
>Ian, no one has explained the antenna currents reported by EZNEC at:
>
>http://www.qsl.net/w5dxp/qrzgif35.gif
>
>How can 0.1+ amp of current be 'flowing' into the bottom of the coil
>and 0.7+ amp of current be 'flowing' out of the top of the coil. It's
>been days now and no one has offered an explanation.

It's because you modeled a real-life coil, whose length and diameter are
each a significant fraction of the size of the whole antenna. Nobody
disputes that the currents at the two ends of a real-life coil are going
to be different... but the reason is because of its other properties
besides pure inductance.

You are hung up on something far more fundamental. You are
misrepresenting the fundamental electrical properties of inductance to
make them fit your theory.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2250. Re: OT for Cecil or any other ex RRAPers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 17:00:13 UTC
From: an_old_friend <konstans@hotmail.com>
Message-ID: <1141837212.960395.167340@j52g2000cwj.googlegroups.com>
Source record: 63610

Cecil Moore wrote:
> an_old_friend wrote:
> > years ago I remmebr somebody I think it was you cecil (but I have slpet
> > since then) said something about being to build or modtify some type of
> > CW kit for some other mode like RTTY etc, looking for the reference
> > care to help out?
>
> It might have been me but I just don't remember, sorry.
> --
> 73, Cecil http://www.qsl.net/w5dxp

well thanks for responding if you ha[en to remmber (after all I might
have just started your memory moving)

2251. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 17:02:23 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <vrWMWiXf4wDEFAFZ@ifwtech.co.uk>
Source record: 63612

Reg Edwards wrote:
>Has it ever occurred to you guys that a coil is a coil wherever it is
>used and always behaves in the same way.
>
>
That is only true if you say it about pure inductance.

But a "coil" is a real-life component that has other properties like physical size, number of turns, self-capacitance and leakage inductance. A coil interacts electromagnetically with the circuit in which it finds itself, so it doesn't always behave in the same way. But pure inductance does.

The difference between inductANCE and an inductOR - a real-life coil - is not just playing with words.

There is a reason for having those two different words... and that reason is the key to this whole debate.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2252. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 17:14:18 UTC
From: richardharrison@webtv.net
Message-ID: <18782-440F10EA-9@storefull-3252.bay.webtv.net>
Source record: 63614

Reg Edwards wrote:
"Has it ever occurred to you guys that a coil is a coil however it is used and always behaves in the same way?"

Yes! But when it is part of an antenna system, the system imposes energy upon the coil in ways which the coil does not control. "The system is the solution", AT&T used to say.

John D. Kraus writes on page 176 of his 1950 edition of "Antennas":
"The term transmission mode is used to describe the manner in which an electromagnetic wave is propagated along an infinite helix (that`s a coil, right?) as though the helix constituted an infinite transmission line or wave guide."

Wave guides and transmission lines are subject to reflections. These produce the standing wave patterns exhibited in many text books. Kraus uses the helix very generally. To him it can collapse to a single loop or be stretched to a straight wire.

When a "normal mode" helix (coil) is used as part of a antenna system, It radiates normal to the axis of the coil, similar to the manner it would were it stretched out to a straight wire. A reflection within the antenna system would return energy toward the generator, similar to the manner it would with straight wires. The same sort of interaction between incident and reflected waves must occur. There is no other way. These produce variatiations in both current and voltage in a periodic manner along the helix as described for transmission lines which should be familiar to all.

The whole section of helical antennas in Kraus is interesting. Kraus is the inventor of the Axial mode helical antenna. I think he tells the story in his 3rd edition of how he went home and wound one up and tested it after being told by an expert of the times that such an antenna was impossible.

Best regards, Richard Harrison, KB5WZI

2253. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 17:23:43 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <7aKdnd_JhqWDjpLZnZ2dnUVZ_smdnZ2d@comcast.com>
Source record: 63613

Ian White GM3SEK wrote:

SNIPPED A LOT
>
>
> You are hung up on something far more fundamental. You are
> misrepresenting the fundamental electrical properties of inductance to
> make them fit your theory.
>
>

I agree with Cecil.

An Inductor in a DC circuit under transient conditions has a classic L/R response.

An inductor in a AC power line [60 Hz] acts as a classic inductor.

An inductor in a LF antenna system acts as a classic inductor when the physical AND electrical dimensions are very small compared to a wavelength.

An Inductor in a HF shortened antenna does NOT act like a classic inductor. It is a significant portion of the HF circuit and must be treated as such.

My 60 meter mobile antenna is 90 degrees long, 1/4 wavelength resonant at 18 +j0 ohms [MFJ analyzer]. It is 10 degrees long from feedpoint to base of coil. Current into the coil is 98% of feedpoint current [cos 10 degrees]. The antenna is 5 degrees long from top of coil to top of antenna. The current at the top of coil calculates to 9% of feed current [sin 5 degrees].

Conclusion: the coil, at 75 degrees of the circuit, has to be treated differently from DC or LF models.

2254. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 18:41:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dun8hm$i2a$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63615

"Ian White GM3SEK" wrote
> Reg Edwards wrote:
> >Has it ever occurred to you guys that a coil is a coil wherever it
is
> >used and always behaves in the same way.
> >
> >
> That is only true if you say it about pure inductance.
>
==========

Ian, old boy, you are no better than the rest of the gaggle !

There's not one of the clever buggers who can design a coil-loaded
whip for a given frequency using a pencil, paper and a pocket
calculator.

They have to copy an already existing, pre-tested, model after
searching through the antenna comics.

Reg.

2255. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 18:44:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <3CFPf.26960$2O6.9927@newssvr12.news.prodigy.com>
Source record: 63616

Ian White GM3SEK wrote:
> There is one typo in that statement: I posted it part-way through
> changing from "In other words, you use the inductance in exactly the
> same way as you would in any other circuit" to "In other words, it [the
> inductance] behaves in exactly the same way as it does in any other
> circuit". I stand by both of those statements.

Too bad you are standing by false statements. :-)

Quoting: http://www.ttr.com/corum/index.htm

"... one needs transmission line
analysis (or Maxwell's equations) to model these electrically
distributed structures. Lumped circuit theory fails because it's
a theory whose presuppositions are inadequate. Every EE in the
world was warned of this in their first sophomore circuits course."

Seems you weren't listening that day, Ian.

"Lumped element representations for coils require
that the current is uniformly distributed along the coil - no wave
interference and no standing waves can be present on lumped elements."

> It's because you modeled a real-life coil, whose length and diameter are
> each a significant fraction of the size of the whole antenna.

A 75m bugcatcher coil is a real-life coil, Ian. Contrary to what
W8JI asserts, it is a significant fraction of the size of the
whole antenna. It uses 42 feet of wire, for goodness sake.

> You are hung up on something far more fundamental. You are
> misrepresenting the fundamental electrical properties of inductance to
> make them fit your theory.

I am using distributed network theory known to work in a standing
wave environment. You are using lumped element theory known to
fail in a standing wave environment. A 75m bugcatcher mobile
antenna is a standing wave environment. So exactly who is
"misrepresenting the fundamental electrical properties of
inductance to make them fit his theory"?
--
73, Cecil http://www.qsl.net/w5dxp

2256. Re: OT for Cecil or any other ex RRAPers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 18:45:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <bDFPf.26963$2O6.16835@newssvr12.news.prodigy.com>
Source record: 63617

an_old_friend wrote:
> well thanks for responding if you ha[en to remmber (after all I might
> have just started your memory moving)

:-) My memory moved out a few years ago. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2257. FS: RF Connectors & Adapters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:00:28 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <1QFPf.2813$ld2.2727@fed1read11>
Source record: 63618
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

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2258. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:04:02 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CUFPf.26964$2O6.5807@newssvr12.news.prodigy.com>
Source record: 63619

Amos Keag wrote:
> I agree with Cecil.

Good to hear.

> Conclusion: the coil, at 75 degrees of the circuit, has to be treated
> differently from DC or LF models.

Yes, I just ran an experiment that would support that statement.

My 75m bugcatcher coil is mounted on a one foot bottom section
on my pickup. I'm sorry but I can't fasten the coil directly
to the mount for reasons of clearance. But one foot at 75m is
only about 1.5 degrees so let's call it negligible.

I have one of those 12 foot telescoping whips from MFJ. It's
great for portable operation from my pickup. It is adjustable
from 2 feet to 12 feet. The first measurement I made was with
no whip at all, just the bugcatcher sitting on top of a one
foot bottom section. I used an MFJ-259B for the measurements
connected through a two foot W2DU choke. Here are the results.

resonant
Stinger frequency
0' 6.7 MHz
2' 5.1 MHz
4' 4.3 MHz
6' 3.8 MHz
8' 3.5 MHz
10' 3.2 MHz
12' 3.0 MHz

It's more than obvious that with a stinger length of 0', the
coil is very close to 1/4WL and is NOT a lumped inductance.
The current at the top of the coil is obviously zero.

So moving down the frequency in 2' increments, exactly when
does a coil made with 42 feet of wire become a lumped inductance
in the presence of standing waves?
http://www.ttr.com/corum/index.htm says never.

When I get my MFJ current meter, I will actually measure the
current at the top and bottom of the coil.
--
73, Cecil http://www.qsl.net/w5dxp

2259. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:05:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9WFPf.26966$2O6.2887@newssvr12.news.prodigy.com>
Source record: 63620

Reg Edwards wrote:
> There's not one of the clever buggers who can design a coil-loaded
> whip for a given frequency using a pencil, paper and a pocket
> calculator.

Sure we can, Reg. Just design the coil too big and
jumper the un-needed turns. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2260. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:09:45 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <1uau02tv55i18di9kii51khu0ss0pseeci@4ax.com>
Source record: 63621

On 8 Mar 2006 07:37:07 -0800, "mazerom" <electromagnetic377@yahoo.com>
wrote:

>another thing...you're not answering the question..im not asking if its
>possible for two EM source to produce doppler shift when at least one
>is moving relative to the other because a 5th grader knows that.
>what im asking is how significant.....
>
>dont answer if u intend to insult!

Would you mind quoting what it is you are repling to?

2261. Military ships fan antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:14:02 UTC
From: NA <n6pjqnot@nospamarrl.net>
Message-ID: <_1GPf.17539$992.17494@tornado.socal.rr.com>
Source record: 63622

Can anyone tell me about "fan antennas" like those used on the large navy ships.

Thanks Jim N6PJQ

2262. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:18:28 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <120ubgbo1kpf523@corp.supernews.com>
Source record: 63623

Michael Coslo wrote:
> Okay. Perhaps I might better characterize my experiment as a
> comparison of a vertical and an OCF dipole of indeterminate vertical vs
> horizontal performance. I was under the impression from the designers of
> this flavor of dipole that they were not radiating from the feedline
> unless you wanted that "feature".

Unfortunately, even if the designers don't intend the feedline to radiate, it's very difficult to avoid. A single balun at the feedpoint is very likely not enough to prevent it.

In that case you would feed the
> antenna with balanced line.

That would make no difference at all in determining whether or not the line would radiate.

Certainly the antenna doesn't seem to be
> radiating RF from anywhere but the antenna bits.

The amount of feedline common mode current and therefore radiation will vary from band to band, probably a great deal. It's easy enough to make up a simple current probe with a clamp-on core and make quantitative measurements if you're interested. They've been described on this newsgroup several times.

Roy Lewallen, W7EL

2263. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:35:42 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <nrbu02tt8ubb88t54nk1bv1gdbel2ekpuv@4ax.com>
Source record: 63624

On Wed, 08 Mar 2006 06:48:29 -0500, Ken C <cprstn54@nospam.att.net>
wrote:

>If I put a T-connector on my feedline and a 50 ohm dummy load on each
>leg, does the transmitter see 50 ohms, or 25 ohms?

Not necessarily either.

The T connects the branches in parallel, so if you have a 50+j0 load
and any length of 50 ohm coax connected to each of two branches, the
impedance at the T is 25 ohms. If you connect to T to something else
(eg a transmitter) with 50 ohm coax, the SWR on that section will
result in impedance transformation that depends on the coax (vf),
frequency, and length. For example, if you had 3m of RG58C/U at 7MHz,
the impedance looking into the cable would be 36+j24.

You can solve the transmission line transformation with the calculator
at http://www.vk1od.net/tl/tllce.php .

>If one leg is not being used, what should be put there (if anything)
>for the transmitter to see 50 ohms if the impedance of the other leg
>is 50 ohms?

You know the answer to that now, the branches of the T are in
parallel, leave one branch open circuit.

Owen
--

2264. Re: Military ships fan antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 19:43:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <l7cu02pp5op1ca8r0ftmrjtoge9tknucrn@4ax.com>
Source record: 63625

On Wed, 08 Mar 2006 19:14:02 GMT, "NA" <n6pjqnot@nospamarrl.net>
wrote:

>Can anyone tell me about "fan antennas" like those used on the large navy
>ships.

Hi Jim,

It is an array of co-planar, parallel monopoles driven at the same,
common point. The size of each in the array is different spanning
from short to long such that at least one is resonant within a wide
band of frequencies.

Two of these hung in the air in dipole fashion become the skeletal
version of the Bowtie antenna.

When the fan of wires are formed into an equal sized array in a circle
(with their far ends attached in a loop); you have a conical antenna
(cone shaped, driven at the pointy end against ground).

All such designs have a reputation for being widebanded, but basically
only as useful as a quarterwave monopole (at any of the resonant
frequencies). For the conical versions, they can resonate over a
considerably wide band, and in fact up to 6 to 10X of the first
resonance. Unfortunately, having a resonance this high does not mean
it is useful. This is because the antenna will be so very long at
that extreme harmonic that most of its radiation will be directed
along its length rather than broadside. This may be an unintended
consequence. The fan design, on the other hand, will have a short
length element that will provide the expected pattern.

73's
Richard Clark, KB7QHC

2265. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:04:22 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141848262.706004.269990@p10g2000cwp.googlegroups.com>
Source record: 63526

kb7qhc wrote, "Doppler is going to give rise to dispersion..."

Doppler alone? Care to elaborate on that?

2266. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:06:54 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <daeu02pfo73bkgfpuklqi73coem7fatu63@4ax.com>
Source record: 63527

On 8 Mar 2006 12:04:22 -0800, "K7ITM" <k7itm@msn.com> wrote:

>kb7qhc wrote, "Doppler is going to give rise to dispersion..."
>
>Doppler alone? Care to elaborate on that?

What do you mean by doppler alone?

2267. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:24:13 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141849453.758363.221460@j33g2000cwa.googlegroups.com>
Source record: 63528

Consider the case of an EM source moving away from you at constant velocity, with nothing but you with your measurement system, the EM source, and freespace. What gives rise to dispersion?

2268. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:50:47 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <Xa-dnbZDzo473pLZRVn-tw@comcast.com>
Source record: 63529

Hmm ... ARRL Antenna Book gives method ... No?

Cecil Moore wrote:

> Reg Edwards wrote:
>
>> There's not one of the clever buggers who can design a coil-loaded
>> whip for a given frequency using a pencil, paper and a pocket
>> calculator.
>
>
> Sure we can, Reg. Just design the coil too big and
> jumper the un-needed turns. :-)

2269. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:55:08 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97808361D7DEBdoldridgsprintca@64.59.135.159>
Source record: 63530

Big Endian <nospam@nospam.com> wrote in
news:nospam-3801D8.18373207032006@news-rdr-02.rdc-kc.rr.com:

>
> My center of a 3.8 Mhz doublet is at about 35 feet and am going to
> drop the ends from 30 feet to about 10 to 15 feet. Just wondering if
> it will make all that much difference if any?

There will be a marked improvement in the low angle performance in the direction off the ends of the antenna (the flattop is very poor at this). This will come at the expense of a sight loss (about .8db) off the pattern's top (where you can most afford it). You will also experience a slight deterioration in the SWR (based on 50 ohm coax) from about 1.34 to 2.05, easily managed by any tuner, including those built into many radios. You will also find that you need to shorten the antenna very slightly to maintain the same resonant frequency.

This won't make it into a superior DX antenna but it may allow you to hear things you missed before. Basically, Bob Heinlein was right. There ain't any such thing as a free lunch.

--
Dave Oldridge+
ICQ 1800667

2270. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 20:56:49 UTC
From: Amos Keag <A.K01@comcast.net>
Message-ID: <zcCdnSVf24KN2JLZRVn-iw@comcast.com>
Source record: 63531

K7ITM wrote:

> Consider the case of an EM source moving away from you at constant
> velocity, with nothing but you with your measurement system, the EM
> source, and freespace. What gives rise to dispersion?
>

There is a small dispersion caused by the modulation scheme. The
modulating frequencies are slightly different from the carrier frequency
and therefore have slightly different doppler shift.

Restated: the Doppler shift on a 144.500 MHz carrier is different from
the Doppler shift on a 15 KHZ FM signal. How much? That's an exercise
for the student ... so sez my Prof!!

The doppler shift of 144.500 MHz is different from the doppler shift of
a 144.515 MHz sub carrier. If the FM moves the sub carrier doppler moves.

2271. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 21:33:45 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141853625.754633.14460@p10g2000cwp.googlegroups.com>
Source record: 63532

OK, Amos, I see what you wrote as a set of changes of frequency, all in the same proportion, exactly as I'd expect from the Doppler formulas I've seen, including relativistic ones. But how does that relate to dispersion? Perhaps kb7qhc will offer us a definition of dispersion...

2272. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 21:53:36 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <94ku02llucfv09shfubu7vr5bg85boorfc@4ax.com>
Source record: 63535

On 8 Mar 2006 12:24:13 -0800, "K7ITM" <k7itm@msn.com> wrote:

>Consider the case of an EM source moving away from you at constant
>velocity, with nothing but you with your measurement system, the EM
>source, and freespace. What gives rise to dispersion?

Doppler does. However, you should follow the nature of the thread in
that it is discussing a spectrum of emission, not just one frequency.
When you have more than one associated frequency, and the source(s)
are in a moving reference plane, these frequencies are all shifted by
the proportion of their frequency in relation to their speed. This
gives rise to corruption of waveshape in modulations - dispersion.

2273. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 21:55:42 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dunjsu$k4j$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63533

"Cecil Moore" wrote
> Reg Edwards wrote:
> > There's not one of the clever buggers who can design a coil-loaded
> > whip for a given frequency using a pencil, paper and a pocket
> > calculator.
>
> Sure we can, Reg. Just design the coil too big and
> jumper the un-needed turns. :-)
==========

Dear Cecil, you know as well as I do, that pruning the coil is not DESIGN. It is a procedure done by people who are floundering about in the dark. Not by supposedly professionally qualified engineers who are participating in this discussion.

Anybody, even a CB-er, can make an antenna with the top of the whip a mile long and then severely prune it until the antenna resonates at the pre-determined frequency, following a score of attempts to use coils of different dimensions and numbers of turns. But even the experimenting CB-er has to understand what he is doing.

Not so the so-called professionals.

It appears from this discussion the university-educated Ph.D professionals are the ones who are floundering about in the dark.

Silly old-wives indeed.

As I have said before, the standards of education in Western schools and universities are dropping to bits. Chinese, Japanese, Korean, Iraqian, Iranian, Afganistan, Indian, Pakistan, Vietnam and Indianesian school kids, not forgetting the half-starved sewer-rats of Rio-de-Janerio, are better at arithmetic. And, what is more important, what stems from it!

If you are interested I am on Spanish, Valencia Red tonight. It is supposed to minimise cholesterol in the blood stream.

Your old pal, Reg.

2274. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 21:55:42 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dunjsu$k4j$2@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63534

Radiation from feedlines is grossly exaggerated.

For many purposes, practically it does not occur.

When discussing the importance of such radiation one should always
crudely estimate its level relative to transmitter or radiated power.

If you don't know what its level is then you don't know what you are
waffling about.

Reg.

2275. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 21:58:19 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <hqku02praidnihqctcqioqcgcfuub9i432@4ax.com>
Source record: 63536

On Wed, 8 Mar 2006 21:55:42 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>If you don't know what its level is then you don't know what you are
>waffling about.

Hi Reggie,

Seeing you lack any quantifiables, are you offering belgian waffles?

73's
Richard Clark, KB7QHC

2276. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:00:28 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141855228.615521.25860@i39g2000cwa.googlegroups.com>
Source record: 63537

You can probably get lots of comments from users of Doppler DF antenna systems about the performance to be expected. (There's a "fox hunting" email list that could get you into a group with lots of direction-finding experience quickly.) Of course, since indicated direction depends on the detected phase of the received Doppler-derived FM modulation, relative to the antenna "rotation," it is important to use a detection path that maintains a very stable phase shift. It's generally useful in practice to have a very narrow filter on the Doppler-derived FM, so that other modulation on the signal does not interfere with your detection. You can do that with switched-capacitor "analog" filters, or with digital filters, locked to the antenna-switching subsystem. Expect multipath to mess up your indication just as it can with any other direction-finding technique. Many practical factors affect how well your antenna system will work. Beware of the mutual impedance among all the antenna elements: you will probably want to insure that elements which are de-selected are non-resonant. If you don't need very fast indication of bearing, you may do better with a rotating directional antenna, ESPECIALLY in terms of minimum detectable signal. If you want to know just how well this Doppler DF scheme is going to work with a particular signal (with perhaps broadband complex modulation), I'd suggest that it's a pretty easy experiment to set up, either with the antenna and receiver you plan to use, or even by generating a version of the source signal with FM added. I have this vision of you trying to detect something that looks like 5MHz wide random noise modulated by a 50kHz-deviation FM, using a receiver with a 50kHz or 100kHz bandwidth, and perhaps being very disappointed in performance.

Finally, why didn't you indicate in your original posting that it was a particular direction-finding application that you were interested in? That probably would have gotten to the point a bit quicker.

Cheers,
Tom

2277. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:09:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9CIPf.74513$PL5.63379@newssvr11.news.prodigy.com>
Source record: 63538

Reg Edwards wrote:
> Dear Cecil, you know as well as I do, that pruning the coil is not
> DESIGN.

I dunno about that, Reg. The Texas Bugcatcher guy made a living
off of coils that were designed to require pruning. He even
sold a pruning kit.

> If you are interested I am on Spanish, Valencia Red tonight. It is
> supposed to minimise cholesterol in the blood stream.

Muy bueno. California Merlot here.
Makes me forget about my cholesterol. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2278. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:10:28 UTC
From: Dan Richardson <k6mhe>
Message-ID: <d6lu02t5qb9l6relpgcdr0tu0uvkv89dgc@4ax.com>
Source record: 63539

On Wed, 08 Mar 2006 13:58:19 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Wed, 8 Mar 2006 21:55:42 +0000 (UTC), "Reg Edwards"
><g4fgq.regp@ZZZbtinternet.com> wrote:
>
>>If you don't know what its level is then you don't know what you are
>>waffling about.
>
>Hi Reggie,
>
>Seeing you lack any quantifiables, are you offering belgian waffles?
>
>73's
>Richard Clark, KB7QHC

Richard,

Just anouther one of Reg's factoids (e pluribus unum).

Danny

2279. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:15:20 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141856120.805216.70730@j33g2000cwa.googlegroups.com>
Source record: 63540

OK, so all wavelengths shift by the same ratio. In what way does that change the "waveshape in modulations," other than to simply change the time scale by that same ratio?

Or--does Doppler shift (alone) give rise to different propagation velocities at different frequencies? Does Doppler shift change an impulse to a chirp (or the right chirp to an impulse)?

2280. yahoo rf amplifiers group

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:25:25 UTC
From: Skipp sent this <spammenotyourubberhead@yahoo.com>
Message-ID: <dunlkl$g24$1@skeeter.ucdavis.edu>
Source record: 63541
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.homebrew,rec.radio.amateur.swap

Just a 50 cent plug to let you folks know about the Yahoo RF Amplifiers Group, please feel free to join in if you have an interest in rf and audio amplifiers. Building - construction - operation - design - operation, you get the idea.

Hope to see you there...

http://groups.yahoo.com/group/rfamplifiers/

cheers,
skipp

2281. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:46:51 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <440f5f05$0$3762$39cecf19@news.twtelecom.net>
Source record: 63542

Dave Oldridge wrote:

> This won't make it into a superior DX antenna but it may allow you to hear
> things you missed before. Basically, Bob Heinlein was right. There ain't
> any such thing as a free lunch.
>

TANJ!

Tom
K0TAR

2282. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 22:56:00 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <80ou021griskpoam5d75lgtdhj7ghcmfqq@4ax.com>
Source record: 63543

On 8 Mar 2006 14:15:20 -0800, "K7ITM" <k7itm@msn.com> wrote:

>OK, so all wavelengths shift by the same ratio.

Yes, in fact they do. I mistakenly ascribed a disproportionality to
the relation of the doppler sidebands and the doppler carrier.

Net answer, no dispersion.

2283. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 23:16:05 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141859765.849151.216550@u72g2000cwu.googlegroups.com>
Source record: 63544

Thanks, Richard. I'd have been happy to learn that indeed Doppler shift does lead to dispersion -- "any day I learn something new is a good day." But coming to agreement was also good. Now, for the next part of the story, Doppler shift _in_combination_with_ multipath indeed does lead to dispersion, I believe. That's why I was careful in my original question to say, "Doppler alone?" See for example http://www.eleceng.adelaide.edu.au/seminars/2005/postgrad/Yu05.html. I get the impression that Ms. Yu is a pretty bright young woman.

Cheers,
Tom

2284. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 23:19:10 UTC
From: Dave <noone@nowhere.com>
Message-ID: <65SdnZhPjq_u-5LZRVn-vA@crocker.com>
Source record: 63545

what are you mumbling about richard? doppler direction finders operate at audio frequencies and since the detector and switching system operate from the same clock they are perfectly accurate... at least as well as you can calibrate the phase reference between the demodulator and clock.

"Richard Clark" <kb7qhc@comcast.net> wrote in message news:p5vs0216rr1hviium9q2tq4lbp4frgfd9c@4ax.com...
> On 7 Mar 2006 17:52:39 -0800, "mazerom" <electromagnetic377@yahoo.com>
> wrote:
>
>>hello dave,
>>
>>same thought here..i wish to use 2.4ghz as my carrier and a doppler
>>shift in the kHz range.
>>any recommendation on good FM receivers in this frequency?
>>thanks
>
> To give you 10% resolution will require it have its local oscillator
> accurate (and stable) to one part in 100 Billion (of course, same goes
> for the source). Hmm, maybe Bang & Olufson....
>
> Laser interferometry would be simpler, and probably cheaper too.
>
> 73's
> Richard Clark, KB7QHC

2285. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 23:25:53 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <elpu02hgmiohs9m3l5baokmmou0seh9ald@4ax.com>
Source record: 63546

On 8 Mar 2006 15:16:05 -0800, "K7ITM" <k7itm@msn.com> wrote:

> I'd have been happy to learn that indeed Doppler shift does lead to dispersion

Hi Tom,

I'd gotten it in my mind that the higher sideband would have increased
more in relation to the carrier than the lower sideband would have (or
versa vice) hence dispersion. Scribbling out the math in response to
your questions resolved that error.

73's
Richard Clark, KB7QHC

2286. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-08 23:35:39 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <d1qu02pd82s7bc9pdub85l8renc5ir0cvt@4ax.com>
Source record: 63547

On Wed, 8 Mar 2006 23:19:10 -0000, "Dave" <noone@nowhere.com> wrote:

>what are you mumbling about richard? doppler direction finders operate at
>audio frequencies and since the detector and switching system operate from
>the same clock they are perfectly accurate... at least as well as you can
>calibrate the phase reference between the demodulator and clock.
>
Hi Dave,

Look at the question again asking for an "FM" receiver. This would require the action of the discriminator which operates relative to the LO. Any frequency offset would be a bias, not an audio frequency. There are two sources in this question, the doppler transmitter, and the doppler detector. This requires coherence. The magnitude of the doppler shift has been described all over the map without a strict correlation to the speeds (or applications) involved. When discussion devolves to FM detection of a base frequency of 2.5GHz shifting KHz (6 orders of magnitude), the necessary components (for coherence of the whole system) demand a rather strict requirement for stability and accuracy for any suitable resolution.

And, of course, some doppler applications can do it with far better economy - but that wasn't asked for.

73's
Richard Clark, KB7QHC

2287. SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:04:53 UTC
From: west <westley@tampabay.rr.com>
Message-ID: <FiKPf.62944$Fw6.28286@tornado.tampabay.rr.com>
Source record: 63548

Originally I requested a source for various length of cables with SMA Male on one end to plug into a HT (Kenwood TH-F6A) and the other end a PL-259. Lengthy and comprehensive treads soon made me realize that the PL-259 would be ill advised especially at UHF & higher. So I found some ready made cables with SMA and N connectors. The only problem (if it's really a problem) is those skinny cables they come in. Some claim that they are 50 ohms, another RG-174. I don't know the other types. Do you think it will be alright to use those narrow cables from my HT to an amplifier to my monitoring meter and then use regular RG 8 to the base antenna? Will those skinny cables present some kind of mismatch. You know it's almost impossible to solder a SMA connector to an RG 8. Thoughts, please? Thank you.

Cordially,
west
AF4GC

2288. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:32:05 UTC
From: w8ji@akorn.net
Message-ID: <1141864325.153022.145680@p10g2000cwp.googlegroups.com>
Source record: 63549

> My 60 meter mobile antenna is 90 degrees long, 1/4 wavelength resonant
> at 18 +j0 ohms [MFJ analyzer]. It is 10 degrees long from feedpoint to
> base of coil. Current into the coil is 98% of feedpoint current [cos 10
> degrees]. The antenna is 5 degrees long from top of coil to top of
> antenna. The current at the top of coil calculates to 9% of feed current
> [sin 5 degrees].
>
> Conclusion: the coil, at 75 degrees of the circuit, has to be treated
> differently from DC or LF models.

I don't know how you can reach that conclusion except by guessing.

The inductor has some effective equivalent series impedance that
includes resistance, reactance, and distributed capacitance.

I can easily build an inductor for your antenna that tunes the antenna
to resonance and when the top-whip is removed makes the lowest resonant
many times higher than 75 degrees plus 10 degrees at 60 meters would
appear.

On the other hand I can probably, given enough time, build an inductor
that might mislead us into thinking the coil inserted in the antenna
acts like it is about 75 degrees long.

Thinking the inductor or loading coil represents 60 degrees of
electrical length is EXACTLY where the big myth is at, and it can
easily be proven to be a myth!

73 Tom

2289. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:33:05 UTC
From: "IOM[fictional]" <"IOM[fictional]"@IOM.net>
Message-ID: <IuCdnchbvOki6pLZnZ2dnUVZ_sadnZ2d@comcast.com>
Source record: 63550

Reg Edwards wrote:

SNIPPED A LOT
>
> There's not one of the clever buggers who can design a coil-loaded
> whip for a given frequency using a pencil, paper and a pocket
> calculator.
>

Hmm ... The capacitance of a short vertical monopole above a conducting plane is a straightforward EM problem [Em 101].

Hmm ... Resonance requires a series inductance where L is proportional to N^2 times D^2. [Circuits 101]

Value of L can be adjusted using transmission line models for location along the monopole. The Zo of the monopole is proportional to the ln(len/dia minus a constant). [Antennas 101]

Given a little time to review the particulars and refresh 60+ years of separation from EM 101 I think the method would work.

But, I don't have a calculator. Would my old Pickett do?

Does this mean I don't qualify as a "clever bugger"?

2290. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:33:17 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141864397.185171.323800@v46g2000cwv.googlegroups.com>
Source record: 63551

Richard,

Doppler DF systems like mazerom is thinking about work by rotating a virtual antenna in a circle -- by successively selecting one antenna at a time from a set of antennas around a circle. (He finally got around to saying that in the other thread...) The effect is to ADD an FM modulation to whatever signal you're receiving. If the signal happens to be a continuous carrier, then you end up receiving a signal with just your antenna's FM modulation. If the transmitted signal was FM to begin with, your FM adds in. If it was an AM signal with carrier, you're still good to go. But if the signal looks like random noise--does FM modulated random noise not still look like random noise?

If you have reasonably clean FM to demodulate, then you just need to calibrate out the (audio) phase shifts of your detector, including whatever filtering you use to extract just the modulation your antenna put on the signal. Then you compare the phase of that detected modulation with the phase of the antenna effective rotation to get bearing. This is similar, in a sense, to how VOR works to give a _receiver_ in an airplane the bearing that receiver is from the VOR transmitter: the VOR effectively rotates a directional antenna very quickly so that the receiver sees an AM signal: max envelope when the directional transmission "points at" that receiver. But the VOR transmitter ALSO is FM modulated. So all receivers tuned to that VOR get the same FM phase reference, but the phase of the AM is different at each receiver depending on its bearing relative to the transmitter. In the Doppler DF, the reference phase is the antenna rotation, which you are controlling, and then the FM phase relative to that depends on the bearing of the arriving signal. In your receiver system, you'll want to use a very narrow filter to reject other modulation, and the trick then is to make the phase shift in that filter be very constant at the frequency of interest. A switched-capacitor (commutating-capacitor) filter will do that, if the commutation is driven synchronously with the antenna switching. But you can also do it with a digital filter which samples at a rate that's synchronous with the antenna switching.

There's an article in QST -- for May, 1978 if I'm remembering correctly -- that describes it, along with plans for constructing such a beast for 2 meters. Anyone want mine? I tried to give it away a couple years ago, but no takers. Worked OK last time I used it.

Cheers,
Tom

2291. Re: SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:47:50 UTC
From: dplatt@radagast.org
Message-ID: <120uupmt5ovbdb8@corp.supernews.com>
Source record: 63552

In article <FiKPf.62944$Fw6.28286@tornado.tampabay.rr.com>,
west <westley@tampabay.rr.com> wrote:

>Originally I requested a source for various length of cables with SMA Male
>on one end to plug into a HT (Kenwood TH-F6A) and the other end a PL-259.
>Lengthy and comprehensive treads soon made me realize that the PL-259 would
>be ill advised especially at UHF & higher. So I found some ready made cables
>with SMA and N connectors. The only problem (if it's really a problem) is
>those skinny cables they come in. Some claim that they are 50 ohms, another
>RG-174.

RG-174 is a 50-ohm cable, just over 1/10" in diameter. It's a decent
choice for HT-to-whatever pigtails, at long as the length isn't so
great that losses become unacceptable.

> I don't know the other types. Do you think it will be alright to use
>those narrow cables from my HT to an amplifier to my monitoring meter and
>then use regular RG 8 to the base antenna?

Almost certainly for short lengths. I wouldn't use it for long runs.

The attenuation per 100' of RG-174 is around 13 dB at 146 MHz, and
about twice that at 440. Thus, at 440, 10' of the cable would lose
you around 2.5 dB, or less than 1/2 of an S-unit at the conventional
calibration. This loss would occur for both transmission and reception.

There are other cables of this size which are less lossy - LMR-100A
has approximately half as much signal loss per foot.

Both RG-174 and LMR-100A have solid center conductors, and might not
stand up to a very large number of flexing cycles. A cable of similar
size with a multistrand center conductor might live longer.

> Will those skinny cables present
>some kind of mismatch.

Not unless the manufacture is seriously botched (e.g. cable not
soldered to connector correctly). They're the same impedance as RG-8,
but are a lot more lossy.

> You know it's almost impossible to solder a SMA
>connector to an RG 8. Thoughts, please? Thank you.

Go for it. A pigtail of anywhere from 18" to a few feet should act as
a perfectly acceptable strain-relief for your HT's SMA connector, and
even at 440 its loss should be low enough that you'd be unlikely to
notice it.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

2292. Re: SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 00:54:25 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141865665.683308.126450@j33g2000cwa.googlegroups.com>
Source record: 63553

So long as your runs are short, there should be no problem. I assume your HT expects to see something reasonably close to a 50 ohm load, and using 50 ohm coax for your connections makes perfect sense in that case. Small coax in general has higher loss than large coax. For a 100 foot run, that might be a problem. For RG-174-type cable at about 25dB per 100 feet at 450MHz, 100 feet would be pretty awful. But four feet is about 1dB, which you might notice but would be a fraction of the contribution of, say, 100 feet of RG-8-type cable at maybe 4dB. So, how long a "skinny cable" are you thinking of, and how long is your RG-8 run in comparison?

Cheers,
Tom

2293. Re: does doppler systems work only for unmodulated continous wave signals?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 01:09:37 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <njvu021usdfih549tfp3q27df3a8ah4mht@4ax.com>
Source record: 63554

On 8 Mar 2006 16:33:17 -0800, "K7ITM" <k7itm@msn.com> wrote:

>Doppler DF systems like mazerom is thinking about work by rotating a
>virtual antenna in a circle -- by successively selecting one antenna at
>a time from a set of antennas around a circle. (He finally got around
>to saying that in the other thread...)

Hi Tom,

Finally indeed.

Yes, commutating antennas. I am also familiar with VOR, I used to
calibrate those systems (and other flight systems) years ago.

73's
Richard Clark, KB7QHC

2294. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 01:40:41 UTC
From: w8ji@akorn.net
Message-ID: <1141868441.069001.198710@j52g2000cwj.googlegroups.com>
Source record: 63555

Alfred Lorona wrote:
> Conventional wisdom cautions against sharp bends in open wire transmission
> line. What is the practical/quantifiable effect of violating this rule?
>
> How does the effect vary with the severity of the bend and does it vary with
> the distance along the line at which the bend occurs?
>
> Tnx es 73, AL.

Al,

I've had many real open wire lines, including one over 1000 feet long.

As Clark pointed out, at extermel high voltage levels a sharp bend can
cause corona problems. In critical systems like video it can cause
impedance bumps that might create faint ghosts in the picture. It make
cause impedance to change slightly.

Sharp bends make no noticable difference at all for amateur
applications, other than weakening the wire if it is a stiff solid wire
like copperweld.

I would never give a moments worry about it.

73 Tom

2295. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 02:32:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AsMPf.48586$Jd.15210@newssvr25.news.prodigy.net>
Source record: 63556

w8ji@akorn.net wrote:
> Thinking the inductor or loading coil represents 60 degrees of
> electrical length is EXACTLY where the big myth is at, and it can
> easily be proven to be a myth!

Well then do it, Tom. But you are not allowed to use the
lumped circuit model. You must use the distributed
network model (or Maxwell's equations). I think the
distributed network model proves otherwise. Could be
you are the one spreading myths after using an invalid
model.

There's just no getting around it. The forward current
undergoes approximately a 90 degree phase shift from
the feedpoint to the end of a 75m mobile bugcatcher
antenna. It is reflected there (180 degree phase
shift) and becomes reflected current which undergoes
approximately a 90 degree phase shift from the tip
of the antenna back to the feedpoint. So from the
start of the forward current wave to the return of
the reflected current wave there is approximately
a 360 degree shift in order to put the forward current
and reflected current in phase so they can superpose
constructively. If the straight element part of the
antenna is 12 degrees, we can account for
12 + 180 + 12 = 204 degrees without the coil. The
coil is the only other thing in the whole system.
Where does the other 78+78=156 degrees of total phase
shift come from if not from the coil? I've explained
all of this to you many times. Might be a good time
to start listening.

You can prove this for yourself. Using current probes
and your o'scope you can measure the traveling wave
phase shift through a loading coil. That figure is
approximately the electrical length that is replaced
by the coil when it is installed in the antenna.
--
73, Cecil http://www.qsl.net/w5dxp

2296. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 02:46:50 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <KNSdnanKoPeKCpLZRVn-qg@adelphia.com>
Source record: 63557

Richard Clark wrote:
> On Wed, 08 Mar 2006 09:47:18 -0500, Michael Coslo <mjc5@psu.edu>
> wrote:
>
>
>>I was under the impression from the designers of this
>>flavor of dipole that they were not radiating from the feedline unless
>>you wanted that "feature".
>
>
> Hi Mike,
>
> This is not outside the realm of possibility. Whose antenna is it?

It's a homebrew antenna.

I'm operating from memory here....

Total length is around 134 feet

Short end is around 26 feet.

- 73 de Mike KB3EIA -

2297. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 03:04:01 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <A6idnQlLyYCDBpLZRVn-tA@adelphia.com>
Source record: 63558

Reg Edwards wrote:
> Radiation from feedlines is grossly exaggerated.

Hi Reg, I can't see who you are replying to - a line of quote would be wunnerful. 8^)

> For many purposes, practically it does not occur.
>
> When discussing the importance of such radiation one should always
> crudely estimate its level relative to transmitter or radiated power.

Is there any way of doing that? Guessing? I've looked around a bit, and mostly seen "Yes it does", or "no it doesn't". I suppose I could make a current probe,(too) but can see this exercise edging toward me buying some large tract of land somewhere and putting up an antenna range! ;^)

> If you don't know what its level is then you don't know what you are
> waffling about.

- 73 de Mike KB3EIA -

2298. Re: SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 03:15:39 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1141874139.396636.204950@p10g2000cwp.googlegroups.com>
Source record: 63559

Dave Platt wrote, "Both RG-174 and LMR-100A have solid center
conductors..."

?? The RG-174 I know has stranded copper-clad steel center conductor,
so it's pretty strong but not solid. Roy Lewallen pointed out a number
of years ago, in this group I think it was, that because the copper
cladding is so thin (about one mil) on the strands, over the lower
frequencies of the HF band and below, the center conductor RF
resistance is nearly constant, and the attenuation flattens out at
those low RF frequencies as a result.

Cheers,
Tom

2299. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 05:37:57 UTC
From: richardharrison@webtv.net
Message-ID: <18782-440FBF35-53@storefull-3252.bay.webtv.net>
Source record: 63560

Tom, W8JI wrote:
"Thinking the inductor or loading coil represents 60 degrees of electrical length is EXACTLY where the big myth is at and it can easily be proven to be a myth!"

A vertical antenna is often driven against a reflecting ground system. It is desirable that it be self resonant at nearly 1/4-wavelength (90-degrees), in many instances, to eliminate reactive impedance to current into the antenna, avoid loading coil loss, and avoid bandwidth limitation which comes with high-Q coils. Even with its drawbacks, a base loading coil is often the practical way to resonate a too-short antenna.

Suppose the vertical is only 2/3 the height needed for self resonance, or 60-degrees high. The loading coil must replace about 30-degrees of missing antenna to bring the vertical to resonance.

30-degrees is not an inductance value. An inductor is impure because it has resistance and capacitance in addition to inductance. Also, the inductance needed to replace the missing 30-degrees of antenna depends on where it is sited, high, low, or in-between.

Siting affects performance as it determines current distribution along the antenna.

Where is the myth?

Best regards, Richard Harrison, KB5WZI

2300. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 07:02:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jgkv021a9mfgiovifuebss4jq4v45jpuni@4ax.com>
Source record: 63561

On Wed, 8 Mar 2006 23:37:57 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Where is the myth?

Hi Richard,

From "The Man Who Shot Liberty Valance:"
"This is the west, sir. When the legend becomes fact,
print the legend."

73's
Richard Clark, KB7QHC
(coulda' been worse, I just finished watching 2 hours of Monty Python)

2301. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 07:23:58 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <SzCDQ3BOg9DEFAT$@ifwtech.co.uk>
Source record: 63562

Richard Harrison wrote:
>Alfred Lorona wrote:
>"Conventional wisdom cautions against sharp bends in open wire
>transmission line."
>
>One does not want to create an impedance bump. Ed Laport shows how to
>make right-angle turns. See page 396 of "Radio Antenna Engineering". It
>works fine with 100 KW.

Can you describe that, please?

Parallel-wire feedline is used with success in 432MHz moonbounce which
are very sensitive to small losses. I don't have any information on
sharp bends, but T-joints and curved bends with say a foot radius cause
no noticeable problems.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2302. Re: FS: RF Connectors & Adapters

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 09:03:32 UTC
From: SamSvL <samsvl@nlr.nl>
Message-ID: <Xns97816653B3F63samsvlnlrnl@137.17.128.14>
Source record: 63563
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

"AAA RF Products" <sales@aaarfproducts.com> wrote in news:1QFPf.2813
$ld2.2727@fed1read11:

> For your free copy of our new catalog,
>
> please email sales@AAARFProducts.com
>
> or see www.aaarfproducts.com
>
> or call 949 481 3154 (San Clemente, CA)
>
> No minimum order.
>
> No handling charges.
>
>
No shipping to Europe?

2303. Re: SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 09:06:13 UTC
From: SamSvL <samsvl@nlr.nl>
Message-ID: <Xns978166C822E30samsvlnlrnl@137.17.128.14>
Source record: 63564

You know it's almost impossible to solder a SMA connector to
> an RG 8. Thoughts, please? Thank you.
>
> Cordially,
> west
> AF4GC
>
I found on Ebay reasonable priced SMA to N adapters. Might
save you from mounting a small connector on a thick cable!

sam

2304. Re: SMA Connector Follow up

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 09:40:54 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <2gtv02tb0755vgq9qvr30eaf80pi6cqr91@4ax.com>
Source record: 63565

On Thu, 09 Mar 2006 00:04:53 GMT, "west" <westley@tampabay.rr.com>
wrote:

>Originally I requested a source for various length of cables with SMA Male
>on one end to plug into a HT (Kenwood TH-F6A) and the other end a PL-259.
>Lengthy and comprehensive treads soon made me realize that the PL-259 would
>be ill advised especially at UHF & higher. So I found some ready made cables
>with SMA and N connectors. The only problem (if it's really a problem) is
>those skinny cables they come in. Some claim that they are 50 ohms, another
>RG-174. I don't know the other types. Do you think it will be alright to use
>those narrow cables from my HT to an amplifier to my monitoring meter and
>then use regular RG 8 to the base antenna? Will those skinny cables present
>some kind of mismatch. You know it's almost impossible to solder a SMA
>connector to an RG 8. Thoughts, please? Thank you.

West,

I would be thinking about a tail made from LMR-195. It is a low loss
cable, dimesionally compatible with RG58 connectors. One meter of it
has a loss of 0.25dB at 440MHz.

Nobody solders these things do they? Get a hold of crimp UHF and SMA
connectors suitable for RG58 and borrow a crimp tool to make them up.
Might be worth buying a couple of strain relief boots as well.

Alternatively, get a bit of old cellular cable, but it may have a
solid centre conductor... check it out.

Keep in mind that a run of 30m of RG8 has a loss close to 5dB at
440MHz, ie only 30% of the transmitter power reaches the feedpoint.

Owen
--

2305. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 10:15:23 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duov7q$71m$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63566

Danny,

Since I am not fluent in Latin, could you please tell me what is a
"Factoid"?

Reg.

2306. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 10:15:23 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duov7r$71m$2@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63567

"Mike Coslo" wrote
> Reg Edwards wrote:
> > Radiation from feedlines is grossly exaggerated.
>
> Hi Reg, I can't see who you are replying to - a line of quote would
be
> wunnerful. 8^)
==

I'm not replying to anyone in particular. Just to anybody who
discusses power radiated from feedlines.
==
>
> > For many purposes, practically it does not occur.
> >
> > When discussing the importance of such radiation one should always
> > crudely estimate its level relative to transmitter or radiated
power.
>
> Is there any way of doing that?
==

Mike, you'd better ask that from people who discuss power radiated
from feedlines. They ought to know!

Reg.

2307. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 11:03:24 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dup21sdkm1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63568

"Cecil Moore" wrote
> Reg Edwards wrote:
> > Has it ever occurred to you guys that a coil is a coil wherever it
is
> > used and always behaves in the same way.
>
> The coil always behaves in the same way. Unfortunately, the models
> used to explain the operation of the coil don't work in the same
> way. Please see:
>
> http://www.ttr.com/corum/index.htm
==

Cecil, thanks, I speed-read your extensive pointer.

The whole thing could be summarised in one short sentence -

"Coils are distributed transmission lines."

The same general equations apply to coils of all dimensions, for any number of turns, at all frequencies, in all applications. There's no need to unnecessarily complicate things by artificially dividing them into lumped and other varieties.

I had to skip over the bit about Smith Charts. As you are aware I don't know how to use one.

It seems Tesla, with HIS coils, knew what it was all about and he couldn't use a Smith Chart either.

Reg.

2308. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 11:59:17 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <441017d2_2@newsfeed.slurp.net>
Source record: 63569

"Ian White GM3SEK wrote
>I don't have any information on sharp bends, but T-joints
> and curved bends with say a foot radius cause no noticeable problems.

UHF broadcast transmit antenna systems often use 90 degree coaxial,
mitre-joint elbows carrying upwards of 50 kW with negligible SWR (<1.02:1).

RF

2309. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 12:28:26 UTC
From: w8ji@akorn.net
Message-ID: <1141907306.333725.215160@i40g2000cwc.googlegroups.com>
Source record: 63570

Richard Harrison wrote:
> Tom, W8JI wrote:
> "Thinking the inductor or loading coil represents 60 degrees of
> electrical length is EXACTLY where the big myth is at and it can easily
> be proven to be a myth!"

> Suppose the vertical is only 2/3 the height needed for self resonance,
> or 60-degrees high. The loading coil must replace about 30-degrees of
> missing antenna to bring the vertical to resonance.

The myth is in thinking your 60-degree vertical is 90 degree resonant by virtue of an inductor "replaces about 30-degrees of missing antenna".

It does not do that.

Every real-world inductor behave to some extent as a transmission line, but unless the inductor is spatially large in terms of wavelength or unless the inductor has a termination impedance significantly higher than the shunting impedance caused by its own self-capacitance to the outside world the "transmission line" or radiation mode effects are negligible.

The ultimate in misunderstanding is when people think the loading inductor replaces a missing electrical degree length, rather than understanding a reasonably compact inductor primarily inserts a reactance that compensates for the capacitive reactance of the antenna system. Does it have some other behavior based on the fact it is less than perfect? Of course. No one is saying it doesn't have some limited effects!

If I have a 10 degree tall base loaded antenna it is a ten degree tall antenna. It is NOT 90 degree resonant antenna with "80 degrees of missing length" in the inductor, nor with that 80 degree long inductor behave like 80 degrees of antenna length would.

The very incorrect concept that an inductor and loaded antenna acts as a "80 degree coil and ten degree antenna" (substitute the numbers you want) is what kicked this whole thing off several years ago.

73 Tom

2310. Re: Military ships fan antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 12:44:15 UTC
From: wood@itd.nrl.navy.mil
Message-ID: <wood-0903060744300001@jbw-mac.itd.nrl.navy.mil>
Source record: 63571

In article <l7cu02pp5op1ca8r0ftmrjtoge9tknucrn@4ax.com>, Richard Clark
<kb7qhc@comcast.net> wrote:

> On Wed, 08 Mar 2006 19:14:02 GMT, "NA" <n6pjqnot@nospamarrl.net>
> wrote:
>
> >Can anyone tell me about "fan antennas" like those used on the large navy
> >ships.
>
> Hi Jim,
>
> It is an array of co-planar, parallel monopoles driven at the same,
> common point. The size of each in the array is different spanning
> from short to long such that at least one is resonant within a wide
> band of frequencies.
>
<snip>

Hello, and the only fan antenna that I have any experience with is the
venerable 2-6 MHz twin fan transmitting antenna used on USN combat ships.
This antenna consists of two sets (port, starbaord) of three sloping wires
strung from a yardarm on the stack to the feedpoint on the deck. A VSWR
of 3 or less is typically achieved using a fixed passive LC network. By
design, most of the radiation actually comes from RF currents induced on
the stack by the fan wires. Sincerely,

John Wood (Code 5550) e-mail: wood@itd.nrl.navy.mil
Naval Research Laboratory
4555 Overlook Avenue, SW
Washington, DC 20375-5337

2311. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:09:19 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <44102855_5@newsfeed.slurp.net>
Source record: 63572

"Amos Keag" wrote
> My 60 meter mobile antenna is 90 degrees long, 1/4 wavelength resonant at
> 18 +j0 ohms [MFJ analyzer]. etc

But how much of that resistance term is the true radiation resistance of your short radiator, and how much is contributed by the coil and "ground plane" losses?

Resonating an electrically short radiator with a loading coil doesn't change the radiation resistance of the short vertical antenna (whip) itself -- and the r-f current able to flow in that whip is the source of practically all of the useful radiation that system can produce.

The loading coil makes it possible for a practical transmitter to deliver r-f power into that short antenna system, but doesn't change the fact that it is only the short radiator itself that provides the useful radiation. The system may have the net reactance of a resonant, 1/4-wave vertical, but it will still have the radiation resistance of the original, short radiator, and that radiation resistance is the primary determinant of system radiation efficiency when using these coil-loaded antennas.

RF

2312. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:13:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1210af3fma68500@corp.supernews.com>
Source record: 63573

Reg Edwards wrote:
> Danny,
>
> Since I am not fluent in Latin, could you please tell me what is a
> "Factoid"?

Danny should be able to translate that. He lives at the coast, where they get lots of touroids from points inland.

Roy Lewallen, W7EL

2313. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:14:34 UTC
From: Dan Richardson <k6mhe>
Message-ID: <dj9012dr7outr7koq2701kgmpgg892ijbk@4ax.com>
Source record: 63574

On Thu, 9 Mar 2006 10:15:23 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Danny,
>
>Since I am not fluent in Latin, could you please tell me what is a
>"Factoid"?
>----
>Reg.
>
How about English? Surely your English dictionary has it listed?

http://encarta.msn.com/dictionary_/factoid.html\\ (definition #1)

"e pluribus unum" at one time was our national motto and still appears
on our coins.

http://en.wikipedia.org/wiki/E_pluribus_unum

Danny

2314. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:17:58 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1210ao82ba5ij56@corp.supernews.com>
Source record: 63575

Ian White GM3SEK wrote:
> . . .
> It is true that we agree on a lot of things, but there's only one reason
> for that: because physical reality is the same in Oregon, England and
> Scotland as it is in Georgia. There is a very high probability that it's
> the same in Texas too.

No, I really think there's some kind of reality vortex in Texas. Adding to the already overwhelming evidence is the recent news that Tom DeLay overwhelmingly won the primary election so is well on the way to re-election. Reality is quite obviously different there.

Roy Lewallen, W7EL

2315. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:32:44 UTC
From: David Shrader <david.shrader@comcast.net>
Message-ID: <c42dnSFnJ6Tns43ZRVn-hg@comcast.com>
Source record: 63476

w8ji@akorn.net wrote:

SNIPPED

>

> If I have a 10 degree tall base loaded antenna it is a ten degree tall
> antenna. It is NOT 90 degree resonant antenna with "80 degrees of
> missing length" in the inductor, nor with that 80 degree long inductor
> behave like 80 degrees of antenna length would.
>

I beg to differ.

If I have a 15 degree long physical antenna, center loaded at 10 degrees, with 5 degrees above the coil I do have a 15 degree physical antenna. That does not mean the antenna is NOT 90 degrees elctrically long! Resonance requires that the reactive components cancel both in amplitude and phase! Each reactive component introduces phase shift into the system. The antenna, without a loading coil, is composed of three terms: resistance [radiation and loss], self capacitance, and self inductance. In a shortened antenna the self capacitance dominates and the resultant phase shift is NOT zero. It is required to add inductance to achieve resonance [phase shift = 0]. If an antenna is electrically 15 degrees long and the self inducance does not reduce the reactive phase shift to zero PHASE SHIFT MUST BE ADDED TO THE ANTENNA for resonance. This phase shift is accomplished by the loading coil.

Now, when that antenna is fed with 1 ampere [Imax] at the base of the antenna and the feed current follows a cosine distribution to the base of the coil [I = Imax*cos(theta)][theta=10], you claim that the current exiting the coil is also Imax*cos(theta), or 98.5% of max value.

However, if we start with zero current at the tip, a valid initial condition, and let current increase by a sine function then I = Imax*sin(theta1][theta1 = 5 degrees] The result is simply 9% of max value. There seems to be a disconnect here. 98.5% = 9% ?????????

If you claim Imax @ 98.5% exits the coil and has a value of 96.6% [I2] at the tip then boundary conditions require total reflection. That requires a 180 degree phase reversal at the I2 amplitude to satisfy the boundary condition. Now the reflected current into the top of the coil is -I3 = 99.6% of -I2. The reflected current exiting the bottom of the coil is, by your reasoning -I3. The reflected current at the base is 96.6% of -I2, or 93% of Imax.

If I understand you correctly, then the measured value at the base of the 15 degree antenna is NOT 1 ampere but only 0.07 amperes.

Obviously, the coil is acting as something more than a simple L. It is adding and inductive phase shift. The vertical has capacitance to the local ground. The vertical also has a self inductance!! That self inducatance is insufficient to complete the 90 phase shift required for resonance. Therefore, I offer that the loading coil provides the required additional inductance for resonance.

2316. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:50:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dupbqfhfc1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63477

"Dan Richardson adelphia net>" <k6mhe<atdot> wrote in message
news:dj9012dr7outr7koq2701kgmpgg892ijbk@4ax.com...
> On Thu, 9 Mar 2006 10:15:23 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>
> >Danny,
> >
> >Since I am not fluent in Latin, could you please tell me what is a
> >"Factoid"?
> >----
> >Reg.
> >
> How about English? Surely your English dictionary has it listed?
>
> http://encarta.msn.com/dictionary_/factoid.html\\ (definition #1)

==
It's not in MY dictionary. I have the Concise Oxford English
Dictionary, 1951 edition.

But you've got it wrong. "Factoid" doesn't apply to me anyway.

Reg.

2317. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:53:02 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <2rWPf.43827$F_3.22431@newssvr29.news.prodigy.net>
Source record: 63478

Richard Harrison wrote:
> Suppose the vertical is only 2/3 the height needed for self resonance,
> or 60-degrees high. The loading coil must replace about 30-degrees of
> missing antenna to bring the vertical to resonance.

Here's the reason why. In a standing wave antenna,
like a mobile antenna, the forward current and the reflected
current are 180 degrees out of phase at the tip of the antenna
and their phasor sum is zero. That is one of the laws of reflection
physics. Their phasors are rotating in opposite directions so they
must each rotate 90 degrees to be in phase and additive at the
feedpoint. That's simple geometry. Your above antenna loading coil
must contribute ~60 deg to the rotation of the forward and reflected
currents. There is nothing else existing in the antenna that can
accomplish that absolutely necessary function.

> Where is the myth?

The lumped circuit model is generating a logical blunder. That model
presupposes no phase shift through an inductance. Therefore, there
is no phase shift through an inductance. (Circular Logic) Fortunately,
the coil ignores our mis-applied man-made model and performs the phase
shift anyway. The actual myth is that there is no phase shift through
a 75m bugcatcher coil. That myth is rampant on ham radio web pages.

The lumped circuit model assumes the proof before a solution to
the problem is even attempted. It is a common mistake, known as
'petitio principii', in the solution of logic problems (also known
as 'begging the question').

Some folks have simply forgotten that the lumped circuit model
presupposes that no reflections exist. It cannot be used in a
standing wave antenna environment. Now that these folk have
been reminded of the technical facts, it will be interesting to
observe the results. Will the erroneous web page information be
corrected?
--
73, Cecil http://www.qsl.net/w5dxp

2318. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 13:56:02 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <StWPf.43829$F_3.20194@newssvr29.news.prodigy.net>
Source record: 63479

Reg Edwards wrote:
> I had to skip over the bit about Smith Charts. As you are aware I
> don't know how to use one.

The basics are really easy. Do you want to learn?
--
73, Cecil http://www.qsl.net/w5dxp

2319. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:13:40 UTC
From: w8ji@akorn.net
Message-ID: <1141913620.136899.90640@u72g2000cwu.googlegroups.com>
Source record: 63480

David Shrader wrote:
> w8ji@akorn.net wrote:
>
> SNIPPED
>
> >
>
> > If I have a 10 degree tall base loaded antenna it is a ten degree tall
> > antenna. It is NOT 90 degree resonant antenna with "80 degrees of
> > missing length" in the inductor, nor with that 80 degree long inductor
> > behave like 80 degrees of antenna length would.

> If I have a 15 degree long physical antenna, center loaded at 10
> degrees, with 5 degrees above the coil I do have a 15 degree physical
> antenna. That does not mean the antenna is NOT 90 degrees elctrically
> long!

If the antenna is 15 degrees long, it is 15 degrees long. I'm not even
sure "90 degree resonant" is a viable phrase, or what it means.

Can I have a series tuned circuit that is "90 degree resonant"? Is the
radiation resistance the same as a 90 degree tall Marconi? Is the
current distribution the same?

If we go to twice the antenna's frequency is it 180 degree resonant?
Does it have a current maximum in the center and HV at each end?

This is as bad as the MFJ 20 foot tall vertical half-wave that covers
80 through 2 meters.

> Resonance requires that the reactive components cancel both in
> amplitude and phase! Each reactive component introduces phase shift into
> the system. The antenna, without a loading coil, is composed of three
> terms: resistance [radiation and loss], self capacitance, and self
> inductance. In a shortened antenna the self capacitance dominates and
> the resultant phase shift is NOT zero. It is required to add inductance
> to achieve resonance [phase shift = 0]. If an antenna is electrically 15
> degrees long and the self inducance does not reduce the reactive phase
> shift to zero PHASE SHIFT MUST BE ADDED TO THE ANTENNA for resonance.
> This phase shift is accomplished by the loading coil.

So what? No one disagrees with that. The series loading inductor
corrects power factor, or brings voltage back in pahse with current.
Nothing I've written or read disagrees with that.

> Now, when that antenna is fed with 1 ampere [Imax] at the base of the
> antenna and the feed current follows a cosine distribution to the base

> of the coil [I = Imax*cos(theta)][theta=10], you claim that the current
> exiting the coil is also Imax*cos(theta), or 98.5% of max value.
>
> However, if we start with zero current at the tip, a valid initial
> condition, and let current increase by a sine function then I =
> Imax*sin(theta1][theta1 = 5 degrees] The result is simply 9% of max
> value. There seems to be a disconnect here. 98.5% = 9% ?????????

That's because you have failed to realize the antenna has a triangular distrubution ABOVE the coil. I suggest you look at this link:

http://www.w8ji.com/Topload_Rad_res.bmp

> If I understand you correctly, then the measured value at the base of
> the 15 degree antenna is NOT 1 ampere but only 0.07 amperes.

Your misunderstanding appears to be rooted in thinking the antenna above the loading reactor has a sine distribution. It does not. It is basically triangular.

Unless distribution is correctly visualized, conclusions will be flawed.

It take a certain number of ampere-feet to radiate a given amount of power as EM radiation. When the spatial distance of the radiating element is reduced, the current has to increase. This is just another way of saying radiation resistance decreases, and current increases.

> Therefore, I offer that the loading coil provides the
> required additional inductance for resonance.

I'll agree with that. It corrects power factor. It forms a series resonant circuit with the capacitance presented by the antenna above the inductor.

The only thing you are missing is the current curves are nowhere like you assume in the whip above the coil. It's very well documented in hundreds of peer reviewed engineering texts that current takes on a triangular distribution in a very short radiator, and that the intetgrated current over the length of that radiator for a given radiated power always equals the same ampere-feet.

73 Tom

2320. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:17:44 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dupdef$19q6$1@f04n12.cac.psu.edu>
Source record: 63481

Reg Edwards wrote:
> "Mike Coslo" wrote
>> Reg Edwards wrote:
>>> Radiation from feedlines is grossly exaggerated.
>> Hi Reg, I can't see who you are replying to - a line of quote would
> be
>> wunnerful. 8^)
> ==
>
> I'm not replying to anyone in particular. Just to anybody who
> discusses power radiated from feedlines.
> ==
>>> For many purposes, practically it does not occur.
>>>
>>> When discussing the importance of such radiation one should always
>>> crudely estimate its level relative to transmitter or radiated
> power.
>> Is there any way of doing that?
> ==
>
> Mike, you'd better ask that from people who discuss power radiated
> from feedlines. They ought to know!

I suspect that the method is to go out and actually try to measure the antenna in question, and perhaps you are being a bit tongue in cheek here? It appears that while there are some general reasons for feedline radiation, the actual situation is so dependent upon the individual antenna setup as to defy any calculation.

Assumptions are part of any experiment, and I'm going to go under the assumption that there isn't a *significant* amount of vertical radiation coming from my antenna. Measurement of that could be grist for a later experiment....

- 73 de Mike KB3EIA -

2321. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:30:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <4_WPf.52074$Jd.41823@newssvr25.news.prodigy.net>
Source record: 63482

w8ji@akorn.net wrote:
>>Suppose the vertical is only 2/3 the height needed for self resonance,
>>or 60-degrees high. The loading coil must replace about 30-degrees of
>>missing antenna to bring the vertical to resonance.
>
> The myth is in thinking your 60-degree vertical is 90 degree resonant
> by virtue of an inductor "replaces about 30-degrees of missing
> antenna".

I'm sure Richard doesn't believe that since that would be circular logic. It is a law of reflection physics that the forward current and reflected current are equal magnitude and 180 degrees out of phase at the tip of a standing wave antenna. It is a fact of physics that those two currents are back in phase at the feedpoint. Since their phasors are rotating in opposite directions, they both must undergo 90 degrees of rotation between the tip of the antenna and the feedpoint. So what you have to do is explain where 90 degrees of phasor rotation comes from if not partly from the coil.

If the coil doesn't rotate the phasors, then the whip must cause that rotation. So, Tom, explain to us how 12 degrees of whip causes 90 degrees of phasor rotation. That explanation should be very interesting. I, and probably Richard H., don't see any other way for the component currents to undergo a 90 degree phase shift. If you do, please enlighten us.

> It does not do that.

Not in every way, of course. A 30 degree coil certainly doesn't replace the radiating ability of 30 degrees of wire. Is that the point you are trying to make?

> Every real-world inductor behave to some extent as a transmission line,
> but unless the inductor is spatially large in terms of wavelength or
> unless the inductor has a termination impedance significantly higher
> than the shunting impedance caused by its own self-capacitance to the
> outside world the "transmission line" or radiation mode effects are
> negligible.

What you don't seem to realize is that a coil can be assumed to be completely lossless, including zero radiation, and essentially the same thing still happens. You obviously do not understand standing waves. Have you ever taken pencil in hand and sketched out the phasor sum of two nearly equal phasors rotating in opposite directions. If you ever did that, you wouldn't keep making that same silly mental blunder over and over.

> The ultimate in misunderstanding is when people think the loading
> inductor replaces a missing electrical degree length, rather than
> understanding a reasonably compact inductor primarily inserts a
> reactance that compensates for the capacitive reactance of the antenna
> system.

Cling to that lumped inductance model for as long as you choose to delude yourself, Tom. It has been proven not to work in a standing wave environment. What is it about, "... one needs transmission line analysis (or Maxwell's equations) to model these electrically distributed structures. Lumped circuit theory fails because it's a theory whose presuppositions are inadequate. Every EE in the world was warned of this in their first sophomore circuits course", that you don't understand?

http://www.ttr.com/corum/index.htm

> If I have a 10 degree tall base loaded antenna it is a ten degree tall
> antenna. It is NOT 90 degree resonant antenna with "80 degrees of
> missing length" in the inductor, nor with that 80 degree long inductor
> behave like 80 degrees of antenna length would.

It is physically 10 degrees tall. The physical height is what determines the radiation pattern. It is electrically 90 degrees long. The electrical length is what determines the feedpoint impedance. Where does that 90 degrees of electrical length come from if not partially from the coil?

> The very incorrect concept that an inductor and loaded antenna acts as
> a "80 degree coil and ten degree antenna" (substitute the numbers you
> want) is what kicked this whole thing off several years ago.

Yes, and it is essentially correct. Your mistake in using a lumped circuit model in a standing wave environment has been going on for years. You are not alone in needing to correct your conceptual mistakes.
--
73, Cecil http://www.qsl.net/w5dxp

2322. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:37:08 UTC
From: richardharrison@webtv.net
Message-ID: <18781-44103D94-206@storefull-3252.bay.webtv.net>
Source record: 63484

Tom, W8JI wrote:
"The very incorrect concept that an inductor and loaded antenna acts as an "80 degree coil and 10 degree antenna" (substitute the numbers you want) is what kicked this whole thing off several years ago."

I infer the "myth" is that the 80-degree coil might radiate as if it had a physical length of 80-degrees. I had no idea that anyone would conclude that! Radiators in most cases depend upon their physical lengths, which may include the length of an exposed coil, for their radiation characteristics.

Glad everyone who responded gave sensible answers. I agree with W7EL too.

Best regards, Richard Harrison, KB5WZI

2323. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:38:37 UTC
From: Dan Richardson <k6mhe>
Message-ID: <iaf012p47la0mmutv58en8o0p1oal5th2f@4ax.com>
Source record: 63483

On Thu, 9 Mar 2006 13:50:07 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>It's not in MY dictionary. I have the Concise Oxford English
>Dictionary, 1951 edition.

From the Oxford English Dictionary:

http://www.askoxford.com/results/?view=dict&field-12668446=factoid&branch=13842570&textsearchtype=exact&sortorder=score%2Cname

Danny

2324. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 14:56:22 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <44104156_2@newsfeed.slurp.net>
Source record: 63485

"Cecil Moore" wrote
> It is physically 10 degrees tall. The physical height is what determines
> the radiation pattern. It is electrically 90 degrees long. The electrical
> length is what determines the feedpoint impedance. Where does that 90
> degrees of electrical length come from if not partially from the coil?

The intrinsic impedance of the radiator consists of its radiation resistance and its reactance. The proper loading coil can provide a net reactance at the feedpoint of the antenna system of ~ zero ohms, but that hasn't changed the radiation resistance of that short radiator.

So the coil-loaded, short radiator is not really "electrically" ~90 degrees long -- it just has the reactance of an antenna that is ~90 degrees long. The coil-loaded, short radiator itself still doesn't have the radiation resistance of linear, 1/4-wave antenna. That remains a function of the electrical length of the whip, itself, apart from the effects of the coil.

RF

2325. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 15:20:59 UTC
From: "Cecil Moore"
Message-ID: <vJXPf.35627$_S7.25127@newssvr14.news.prodigy.com>
Source record: 63486

"Richard Fry" <rfry@adams.net> wrote in message
news:44104156_2@newsfeed.slurp.net...
> So the coil-loaded, short radiator is not really "electrically" ~90
degrees
> long -- it just has the reactance of an antenna that is ~90 degrees long.

But Richard, that is what is meant by "electrical" length, that it has the
same phase shift as a ~90 degree antenna.
--
73, Cecil, W5DXP

2326. Re: doppler problem

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 15:33:12 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1141918392.441882.138860@e56g2000cwe.googlegroups.com>
Source record: 63487

hi tom,
very nice and masterly suggestions and insights...thanks

2327. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 15:38:19 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <4nh012l7ogdc07e4vcciuj0l21usbbtpnp@4ax.com>
Source record: 63488

On Thu, 09 Mar 2006 08:32:44 -0500, David Shrader
<david.shrader@comcast.net> wrote:

>w8ji@akorn.net wrote:
>
>SNIPPED
>
>>
>
>> If I have a 10 degree tall base loaded antenna it is a ten degree tall
>> antenna. It is NOT 90 degree resonant antenna with "80 degrees of
>> missing length" in the inductor, nor with that 80 degree long inductor
>> behave like 80 degrees of antenna length would.
>>
>
>I beg to differ.
>
>If I have a 15 degree long physical antenna, center loaded at 10
>degrees, with 5 degrees above the coil I do have a 15 degree physical
>antenna. That does not mean the antenna is NOT 90 degrees elctrically
>long! Resonance requires that the reactive components cancel both in
>amplitude and phase! Each reactive component introduces phase shift into
>the system. The antenna, without a loading coil, is composed of three
>terms: resistance [radiation and loss], self capacitance, and self
>inductance. In a shortened antenna the self capacitance dominates and
>the resultant phase shift is NOT zero. It is required to add inductance
>to achieve resonance [phase shift = 0]. If an antenna is electrically 15
>degrees long and the self inducance does not reduce the reactive phase
>shift to zero PHASE SHIFT MUST BE ADDED TO THE ANTENNA for resonance.
>This phase shift is accomplished by the loading coil.
>
>Now, when that antenna is fed with 1 ampere [Imax] at the base of the
>antenna and the feed current follows a cosine distribution to the base
>of the coil [I = Imax*cos(theta)][theta=10], you claim that the current
>exiting the coil is also Imax*cos(theta), or 98.5% of max value.

Tom has quite adequately addressed this, however, if you go here:

http://www.k6mhe.com/n7ws

and look at either Note 1 or 2 and then look at figures 1 and 2 this
might change your mind about the current distribution.

[snip]

2328. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 15:42:35 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <44104c28_2@newsfeed.slurp.net>
Source record: 63489

Cecil Moore:
>> So the coil-loaded, short radiator is not really "electrically" ~90
>> degrees long -- it just has the reactance of an antenna that is
>> ~90 degrees long. (R. Fry quote)
>
> But Richard, that is what is meant by "electrical" length, that it has
> the same phase shift as a ~90 degree antenna.

So the definition of electrical length you use excludes radiation resistance? That resistance is the only parameter giving any antenna the ability produce useful EM radiation in a practical antenna system. And that resistance is a function of the physical properties and configuration of the radiator with respect to the operating frequency.

Model a short vertical radiator in NEC, and check its impedance. If short enough, it could be something like 0.1 -j2500 ohms. Now add an inductive reactance to the system to reach resonance. NEC then will show 0.1 +/-0 ohms. Note that the radiation resistance term did not change.

That short system is resonant, but it certainly won't have the practical radiation efficiency of a full, 1/4-wave, linear radiator, even though they both have the same "electrical length" by your definition.

RF

2329. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 16:07:27 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <c1j0129f2c4i83sfarh7cvo0o11kkt4s7v@4ax.com>
Source record: 63490

On Wed, 8 Mar 2006 23:37:57 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Tom, W8JI wrote:
>"Thinking the inductor or loading coil represents 60 degrees of
>electrical length is EXACTLY where the big myth is at and it can easily
>be proven to be a myth!"
>
>A vertical antenna is often driven against a reflecting ground system.
>It is desirable that it be self resonant at nearly 1/4-wavelength
>(90-degrees), in many instances, to eliminate reactive impedance to
>current into the antenna, avoid loading coil loss, and avoid bandwidth
>limitation which comes with high-Q coils. Even with its drawbacks, a
>base loading coil is often the practical way to resonate a too-short
>antenna.
>
>Suppose the vertical is only 2/3 the height needed for self resonance,
>or 60-degrees high. The loading coil must replace about 30-degrees of
>missing antenna to bring the vertical to resonance.
>
>30-degrees is not an inductance value. An inductor is impure because it
>has resistance and capacitance in addition to inductance. Also, the
>inductance needed to replace the missing 30-degrees of antenna depends
>on where it is sited, high, low, or in-between.
>
>Siting affects performance as it determines current distribution along
>the antenna.
>
>Where is the myth?

Maybe part of the myth is that the antenna must be resonant to work. Nothing could be further from the truth.

How about this thought experiment: Assume a too short for resonance monopole, that has its feedpoint impedance made non-reactive by the insertion of a "base loading coil." All kinds of arguments, including this one, arise about what the role of the coil is, what its current distribution is, how it affects efficiency and so forth.

To minimize these arguments, let's stop calling the inductor a "base loading coil" and call it part of an "L-network feedpoint matching network." Now the radiator isn't resonant and the resulting feedpoint reactance (and resistance) is matched separately with the external network.

Has the radiator current distribution changed? No. Does the inductor in the L-network "make up" some number of electrical degrees in the radiator? Not from my viewpoint.

2330. Concord,ca Police Department gives people tickets that have 820lbs. in a 1 ton pu truck

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 16:42:58 UTC
From: "blackhca@hotmail.com" <blackhca@hotmail.com>
Message-ID: <1141922578.317968.87630@u72g2000cwu.googlegroups.com>
Source record: 63491
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

Concord,ca Police Department Officer Ron Turner is a
FUCKEN DIRTY black pig cop he gives people tickets
that have 820lbs. in a 1 ton pu truck and this what the
ticket had on it : for overloaded tire load range when
tire load range on ea. tire is 3042lbs.then at court he
walks up to the judge and says ALL CHARGES DROPPED.

2331. Re: Concord,ca Police Department gives people tickets that have 820lbs. in a 1 ton pu truck

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 16:55:55 UTC
From: JM <JM@nottelling.com>
Message-ID: <v6ZPf.33050$wl.20976@text.news.blueyonder.co.uk>
Source record: 63492
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

207.200.116.71

Reported to ISP for breaching T&C.

OrgName: Netscape Communications Corp.
OrgID: NSCP
Address: 501 E. Middlefield
City: Mountain View
StateProv: CA
PostalCode: 94043
Country: US

NetRange: 207.200.64.0 - 207.200.127.255
CIDR: 207.200.64.0/18
NetName: NETSCAPE-CIDR
NetHandle: NET-207-200-64-0-1
Parent: NET-207-0-0-0-0
NetType: Direct Allocation
NameServer: NS.NETSCAPE.COM
NameServer: NS2.NETSCAPE.COM
Comment: ADDRESSES WITHIN THIS BLOCK ARE NON-PORTABLE
RegDate: 1996-09-06
Updated: 2001-03-28

RTechHandle: AOL-NOC-ARIN
RTechName: America Online, Inc.
RTechPhone: +1-703-265-4670
RTechEmail: domains@aol.net

Have a nice day.

2332. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 17:14:32 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YnZPf.52790$Jd.19073@newssvr25.news.prodigy.net>
Source record: 63493

"Richard Fry" <rfry@adams.net> wrote in message
news:44104c28_2@newsfeed.slurp.net...
> So the definition of electrical length you use excludes radiation
> resistance?

Yes, of course a 60 degree coil obviously doesn't radiate like a 60 degree
piece of wire. The 60 degrees is merely the phase shift that a traveling
wave
current undergoes while traveling through the coil. I hope this is not
just a semantic problem. When someone says a coil replaces 60 degrees
of an antenna, he certainly doesn't mean for radiation purposes (unless
he is an absolute dummy). He simply means the coil causes a 60 degree
phase shift in the forward current, much like a 60 degree length of wire.
And that's all it means.

> Model a short vertical radiator in NEC, and check its impedance. If short
> enough, it could be something like 0.1 -j2500 ohms. Now add an inductive
> reactance to the system to reach resonance. NEC then will show 0.1 +/-0
> ohms. Note that the radiation resistance term did not change.

Of course not! Nobody is arguing otherwise. You are obviously confused
about what I, and others, are saying.

> That short system is resonant, but it certainly won't have the practical
> radiation efficiency of a full, 1/4-wave, linear radiator, even though
they
> both have the same "electrical length" by your definition.

Is this a straw man? Nobody has said anything remotely resembling any
argument otherwise. Electrical length doesn't have much to do with
radiation. The radiation resistance and therefore efficiency, is closely
associated with the physical length. Electrical length mainly has to do with
phasor rotation. If a traveling wave current phasor rotates 90 degrees while
flowing through a coil, the coil's electrical length is 90 degrees. That's a
pretty
simple concept. The coil can even be considered to be lossless and non-
radiating in some relatively efficient antenna systems without introducing
much of an error.
--
73, Cecil, W5DXP

2333. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 17:51:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <UWZPf.21321$rL5.17414@newssvr27.news.prodigy.net>
Source record: 63494

"Wes Stewart" <n7ws*@*yahoo.com> wrote
> if you go here:
>
> http://www.k6mhe.com/n7ws
>
> and look at either Note 1 or 2 and then look at figures 1 and 2 this
> might change your mind about the current distribution.

Nobody is disputing the current rise through a coil. In fact, I have
been pointing it out. The coil does distort the current away from
the nice cosine envelope of a 1/2WL thin wire dipole.

Your graphs show standing wave current which doesn't flow. (Its
phase angle doesn't rotate.) Therefore, the magnitude of the standing
wave current can be any value depending upon where it is located in
the system. Wes, please take a look at http://www.qsl.net/qrzgif35.gif
to find out why standing wave current can have any value and is thus
unimportant. EZNEC plots the current in much the same way that
you have. So are the EZNEC results wrong and yours right? The
fact is that a standing wave current plot is close to meaningless.
Why are we continuing to discuss standing wave current?

What we need to plot is the forward traveling wave current and
the reflected traveling wave current which are the two components
of your standing wave current graphs. Do you have any simulation
software that will plot the forward current and reflected current?
Nobody is going to understand what is really happening until we
get a plot of those two component waves or at least an estimated
graph of the underlying superposed currents.

In fact, how about your best estimate of a graph of forward and
reflected currents through the coil including phase shifts? Only
then are you likely to understand what we are talking about..
--
73, Cecil, W5DXP

2334. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 18:20:08 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1210ser332cpg35@corp.supernews.com>
Source record: 63495

David Shrader wrote:
> w8ji@akorn.net wrote:
>
> SNIPPED
>
>>
>
>> If I have a 10 degree tall base loaded antenna it is a ten degree tall
>> antenna. It is NOT 90 degree resonant antenna with "80 degrees of
>> missing length" in the inductor, nor with that 80 degree long inductor
>> behave like 80 degrees of antenna length would.
>>
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> I beg to differ.
>
> If I have a 15 degree long physical antenna, center loaded at 10
> degrees, with 5 degrees above the coil I do have a 15 degree physical
> antenna. That does not mean the antenna is NOT 90 degrees elctrically
> long! Resonance requires that the reactive components cancel both in
> amplitude and phase! Each reactive component introduces phase shift into
> the system. The antenna, without a loading coil, is composed of three
> terms: resistance [radiation and loss], self capacitance, and self
> inductance. In a shortened antenna the self capacitance dominates and
> the resultant phase shift is NOT zero. It is required to add inductance
> to achieve resonance [phase shift = 0]. If an antenna is electrically 15
> degrees long and the self inducance does not reduce the reactive phase
> shift to zero PHASE SHIFT MUST BE ADDED TO THE ANTENNA for resonance.
> This phase shift is accomplished by the loading coil.
>
> Now, when that antenna is fed with 1 ampere [Imax] at the base of the
> antenna and the feed current follows a cosine distribution to the base
> of the coil [I = Imax*cos(theta)][theta=10], you claim that the current
> exiting the coil is also Imax*cos(theta), or 98.5% of max value.
>
> However, if we start with zero current at the tip, a valid initial
> condition, and let current increase by a sine function then I =
> Imax*sin(theta1][theta1 = 5 degrees] The result is simply 9% of max
> value. There seems to be a disconnect here. 98.5% = 9% ?????????
>
> If you claim Imax @ 98.5% exits the coil and has a value of 96.6% [I2]
> at the tip then boundary conditions require total reflection. That
> requires a 180 degree phase reversal at the I2 amplitude to satisfy the
> boundary condition. Now the reflected current into the top of the coil
> is -I3 = 99.6% of -I2. The reflected current exiting the bottom of the

> coil is, by your reasoning -I3. The reflected current at the base is
> 96.6% of -I2, or 93% of Imax.
>
> If I understand you correctly, then the measured value at the base of
> the 15 degree antenna is NOT 1 ampere but only 0.07 amperes.
>
> Obviously, the coil is acting as something more than a simple L. It is
> adding and inductive phase shift. The vertical has capacitance to the
> local ground. The vertical also has a self inductance!! That self
> inducatance is insufficient to complete the 90 phase shift required for
> resonance. Therefore, I offer that the loading coil provides the
> required additional inductance for resonance.

You can replace the antenna with a box containing a series resistor and capacitor, and except for the field there's no steady state way to tell it from an antenna. A physically small inductor such as a toroid will function exactly the same in both cases. (I limited it to being physically small, since a larger inductor will interact with the antenna's field.) So your explanation should work just as well when the inductor is in series with a simple RC as when it's in series with an antenna. I can easily write the equations describing the voltage and current at every part of the resulting RLC circuit, using circuit analysis techniques which have been around for over a century. You're saying either that they're wrong, or that you can tell by looking at the terminals of a black box whether it contains an antenna or a simple RC. Can you describe the method you'd use, restricting yourself to steady state measurements, how you'd tell the difference?

Roy Lewallen, W7EL

2335. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 18:33:08 UTC
From: w8ji@akorn.net
Message-ID: <1141929188.910581.171220@p10g2000cwp.googlegroups.com>
Source record: 63496

Wes Stewart wrote:

> Maybe part of the myth is that the antenna must be resonant to work.
> Nothing could be further from the truth.

> Has the radiator current distribution changed? No. Does the inductor
> in the L-network "make up" some number of electrical degrees in the
> radiator? Not from my viewpoint.

I think there are two problems:

1.) Cecil wants everyone to start using reflection wave models to analyze every antenna system in the world.

2.) Many people think a very short monopole antenna that is resonant is still 90 electrical degrees long, and that the inductor makes up the missing number of degrees, and the current taper across that inductor is some form of sine shaped curve.

Cecil is free to use whatever tools he likes. He doesn't work for me, and (thank God) I don't have to work for him! What he wants me or others to do is a moot point.

I am concerned about the commonly held but very incorrect view that current travels through an inductor turn-by-turn, and that a loading inductor somehow shifts the phase of and/or level of current to "make up for missing degrees".

My only concern is people not understanding how an inductor and short antenna actually behaves. That problem is worth attention.

73 Tom

2336. Re: OT for Cecil or any other ex RRAPers

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 18:33:45 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1210t89q0dl50b5@corp.supernews.com>
Source record: 63497

Cecil Moore wrote:
> an_old_friend wrote:
>
>> well thanks for responding if you ha[en to remmber (after all I might
>> have just started your memory moving)
>
>
> :-) My memory moved out a few years ago. :-)
Memory does move out on us, mine did years ago. You still have a hog
though Cecil, my wife won't let me have one!

Butch

2337. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 18:41:43 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HF_Pf.53220$Jd.39740@newssvr25.news.prodigy.net>
Source record: 63498

"Wes Stewart" <n7ws*@*yahoo.com> wrote :
> Maybe part of the myth is that the antenna must be resonant to work.
> Nothing could be further from the truth.

Can we agree that if the feedpoint impedance is purely resistive, then
the antenna is resonant?

> How about this thought experiment: Assume a too short for resonance
> monopole, that has its feedpoint impedance made non-reactive by the
> insertion of a "base loading coil." All kinds of arguments, including
> this one, arise about what the role of the coil is, what its current
> distribution is, how it affects efficiency and so forth.
>
> To minimize these arguments, let's stop calling the inductor a "base
> loading coil" and call it part of an "L-network feedpoint matching
> network." Now the radiator isn't resonant and the resulting feedpoint
> reactance (and resistance) is matched separately with the external
> network.
>
> Has the radiator current distribution changed? No. Does the inductor
> in the L-network "make up" some number of electrical degrees in the
> radiator? Not from my viewpoint.

This can be easily addressed by looking at a G5RV on 40m. On
40m, the feedpoint impedance at the dipole is about 500+j100 ohms.
The parallel twinlead matching section is about 110 degrees long.
The resonant impedance looking into the matching section is about
27+j0 ohms. So the G5RV matching section has indeed made up
about 110 degrees needed by the antenna *system*. The tuned
matching section has increased the electrical length of the antenna
system by 110 degrees so its a pretty good match for coax.. The
same goes for an antenna loading coil no matter where it is located.
If the short whip antenna system needs 60 degrees to be matched
(resonated) the coil provides 60 degrees of phase shift.
That's all we are saying when we say the coil replaces 60
of degrees of an antenna system.

And the basic argument is whether a lumped circuit analysis
can be used on a coil when reflections are present. The answer
is NO!

If an antenna system needs 60 degrees to be resonant, it can be
done in any number of ways. You can give it 60 degrees of
transmission line or you can give it 60 degrees of coil. But please
note that the 60 degrees of phase shift in the loading coil has
no effect on the phase of the standing wave current. The phase

of the standing wave current essentially doesn't change all up
and down a 1/2WL dipole. Why would you expect it to change
in a shortened monopole. The fact that it doesn't changing is
essentially meaningless. It doesn't change whether a coil is
present or not.
--
73, Cecil, W5DXP

2338. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 18:50:11 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <r2u012ppnuse3r6qhvgcpcpogu5ueb28p2@4ax.com>
Source record: 63499

On Thu, 9 Mar 2006 11:03:24 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>It seems Tesla, with HIS coils, knew what it was all about and he
>couldn't use a Smith Chart either.

Tesla also experimented with over-the-air transmission of utility
power to homes. He might have needed to know how to use a Smith
Chart, or perhaps he needed a straight-jacket.

2339. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 19:09:23 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1210vb5rp7eguad@corp.supernews.com>
Source record: 63500

For what it's worth --

I've avoided this discussion for two primary reasons. One is that it saddens me to see this "controversial" topic being brought up yet again after having been discussed at great length a number of times before. There's no reason I can see for it other than Cecil's religious zeal and dogged determination.

The second reason is that I hate to be reminded how easily some people can be manipulated to wholly ignore well known physics and embrace alternate theories which are devoid of the ability to produce predictions or numerical results to demonstrate their validity. We live with it every day in our ordinary lives, seeing the astrology column in the newspaper (and learning that it's been a driving force behind top level government decisions), homeopathic remedies at the drug store, and so forth. It's hard to see it keep surfacing here also.

Fortunately, some very good, honest, and knowledgeable people have been doing a very good job of presenting the facts. These include Tom, W8JI; Ian, G3SEK; Wes Stewart, N7WS; and Gene Fuller, W4SZ. Anyone who is truly interested in understanding the topic (which is fundamentally very simple) would do well to read what those folks have written and are writing. Because they're dealing with facts and well known phenomena, they can back up what they say with numbers and the ability to explain the phenomena you see.

I'd like to add one note to particularly pay attention to Ian's postings on March 6 and 8 explaining the difference between an inductor and inductance. When I and others have spoken of a "physically small coil" we're talking about something resembling a pure inductance. As Ian and others have said, the first step in understanding this topic is to understand how the idealized component works. Only after that can you add the effects of coupling to external fields, which explain the current difference you typically do see between the ends of a real inductor loading an antenna. The red herring in this discussion is the attempt to attribute this effect to something fundamental about inductances, rather than the effect of external fields interacting with a real inductor of significant physical size. Part of this is understandable, because an inductor can be surprisingly small and still exhibit substantial current difference from one end to the other when in the field of a short antenna, because the field from the antenna is very intense. The field from the inductor is also quite large, making noticeable capacitive coupling nearly always present, which also provides a path for displacement current. So it's somewhat natural to assume that the current difference between ends is more fundamental than

it really is. But the argument has been taken well beyond reason by the zeal to explain every phenomenon by means of reflecting waves and packets of average power. It's not necessary at all, and all that does is to provide a confounding factor to obscure the simplicity of what's really happening. Since the basis for this approach is largely contrived and devoid of the ability to produce quantitative results, it's easy to make pronouncements which can't be verified.

It's pretty obvious that objects in motion come to rest naturally without any external force. You reach this conclusion by failing to separate the external force of friction from the inherent inertia of the object. The problem here is exactly the same -- people are failing to separate the phenomenon of external coupling from the inherent properties of inductance, and concluding that observed current differences between the ends of loading inductors are caused by some inherent property of inductance.

I can imagine people arguing about the basic property of objects to spontaneously come to rest long after Newton proved it otherwise. Actually, I wouldn't even be surprised if there's some Newtonian Cecil who's still arguing about it.

Roy Lewallen, W7EL

2340. Re: Bend in xmission line

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 19:11:25 UTC
From: richardharrison@webtv.net
Message-ID: <24187-44107DDD-279@storefull-3251.bay.webtv.net>
Source record: 63502

Ian, GM3SEK wrote:
"Can you describe that please?"

Gladly.

For low loss at 100 KW, you use large cable and wide spacings at 600 ohms. It may have been more economical to use more conductors but for simplicity we stuck with a 2-wire balanced feed system. We had at that particular time and location the largest congregation of high-powered shortwave transmitters and directional antennas in the world. We installed a crossbar switching system so that almost any transmitter could access any antenna. We were on the air with most transmitters operating nearly 24 hours a day, but switching antennas several times a day according to our announced program schedule to accommodate anticipated propagations to the target areas served.

Ed Laport as Chief Engineer of RCA International had as much experience as anyone with commercial shortwave radio, so we relied upon him for information and weren`t disappointed.

On page 396 of "Radio Antenna Engineering", Ed illustrates a corner made using two transmission lines. He shows a single pole with two crossarms, one above the other and making the horizontal angle required for the intersection. He terminates the lines one on each crossarm. Jumpers are used to interconnect the two lines.

Our line cables were akin to welding cable. We joined them with sleeves and fittings attached with a hydraulic press (Nicropress). With wide spacing the lines are tolerant of bumps and don`t tend to flashover.

Ed gives a graph of the value of the ratio of line spacing to cable radius versus Zo. For 600 ohms the ratio is about 150.

Best regards, Richard Harrison, KB5WZI

2341. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 19:12:30 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <y6%Pf.53356$Jd.17270@newssvr25.news.prodigy.net>
Source record: 63501

"Roy Lewallen" <w7el@eznec.com> wrote:
>A physically small inductor such as a toroid will
> function exactly the same in both cases. (I limited it to being
> physically small, since a larger inductor will interact with the
> antenna's field.)

You're missing the point, Roy. It indeed does function the
same way in both cases but if there are reflections present,
your lumped circuit analysis rules are known to fail.Your
analysis of both cases may be equally wrong in both
cases.

What is the traveling wave current delay through the coil in
degrees? That's easy to measure. That current delay is the
degrees that the coil supplies to the antenna. You can ignore
any measurements involving standing wave current as being
essentially meaningless. What is important is the traveling-
wave current delay through the coil. Please measure it and
report what it is for your 'physically small toroid'.

Your lumped circuit analysis pre-assumes a zero delay
through the coil. That delay is certainly not zero in the real
world.
--
73, Cecil, W5DXP

2342. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 20:21:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <q70Qf.74703$PL5.72977@newssvr11.news.prodigy.com>
Source record: 63503

<w8ji@akorn.net> wrote:
> 1.) Cecil wants everyone to start using reflection wave models to
> analyze every antenna system in the world.

No, I simply want you and others to stop using a known invalid
model for every standing wave antenna system in the world.
This is a quote from the first web page below: The capital
letters are where the author used bold italics for emphasis.

"... - no wave interferrence and no standing waves can be
present on lumped elements. The problem has been that many
experimenters working with self-resonant helices have
PURSUED THE CONCEPT OF COIL SELF-
CAPACITANCE WITHOUT REALLY UNDERSTANDING
WHERE THE NOTION COMES FROM OR WHY IT WAS
EVER INVOKED BY ENGINEERS. For that, they will have
to go read R.W.P. King's wonderful old book, "Electromagnetic
Engineering, McGraw-Hill, 1945. ... On page 465, the Harvard
Professor points out that, for coils whose *wire length* exceeds
1/6 wavelength, ...'an adequate representation of the reactance
of a coil with a nonuniformly distributed currentr is NOT
POSSIBLE in terms of a coil with a uniform current [a lumped
element inductance] ...' Period. Resonant FIELDS present
surprises to engineers with limited training."

Certainly sounds like he is talking about you, Tom. "Electronic
Engineering" was written before you were born. Why are you
ignorant of the technical facts presented in it?

http://www.ttr.com/corum/index.htm

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf

The .pdf paper is a pier-reviewed publication by the IEEE. Here's
what it says about the model you have chosen to use.

"Of course, the uniform current assumption has no validity for coils
operating anywhere near self-resonance!"

"The failure of any limped element circuit model to describe the
real world lies at its core inherent *presupposition*: the speed of
light is presumed to be infinite in the wave equation. ... Consequently,
lumped element circuit theory does not (and cannot) accurately
embody a world of second order partial differential equations in
space and time."

"The concept of coil "self-capacitance" is an attempt to circumvent
transmission line effects on small coils when the current distribution
begins to depart from its DC behavior."

"There are a great number of formulae for coil self-capacitance.
None are of particular value for quarter-wave helical resonators
anywhere near the 90 degree point."

"The delusion is that the short coil is then made to operate in the
lumped element regime ...".

That you refuse to give up on an invalid method in the face of
overwhelming evidence is amazing.

> What he wants me or others to do is a moot point.

Afraid of what you will find? The first web page above says:
"Lumped circuit theory isn't absolute truth, it's only an analytical
theory - and in these resonators we have the case where this
sophmore theory fails experimentally." Do the experiment, Tom,
and discover exactly how sophmorish you are being.

> I am concerned about the commonly held but very incorrect view that
> current travels through an inductor turn-by-turn, and that a loading
> inductor somehow shifts the phase of and/or level of current to "make
> up for missing degrees".

Tom, that's what any matching network does. Loading coils are no
exception.

> My only concern is people not understanding how an inductor and short
> antenna actually behaves.

I am concerned about you not understanding, Tom. Don't
you believe the information posted on those web pages above. Don't
you think a peer-reviewed IEEE publication that disagrees with you
is worth a second thought from you. Don't you think ignoring the
knowledge published by experts in the field is a little naive?
--
73, Cecil, W5DXP

2343. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 20:43:01 UTC
From: w8ji@akorn.net
Message-ID: <1141936980.983089.217740@v46g2000cwv.googlegroups.com>
Source record: 63504

Cecil Moore wrote:

> What is the traveling wave current delay through the coil in
> degrees? That's easy to measure. That current delay is the
> degrees that the coil supplies to the antenna. You can ignore
> any measurements involving standing wave current as being
> essentially meaningless. What is important is the traveling-
> wave current delay through the coil. Please measure it and
> report what it is for your 'physically small toroid'.
>
> Your lumped circuit analysis pre-assumes a zero delay
> through the coil. That delay is certainly not zero in the real
> world.

The problem with people doing work to verify this is even if several
people measure something, Cecil will ignore results.

73 Tom

2344. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 21:01:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tl0Qf.21355$rL5.2755@newssvr27.news.prodigy.net>
Source record: 63505

"Roy Lewallen" <w7el@eznec.com> wrote:
>> I've avoided this discussion for two primary reasons. One is that it
> saddens me to see this "controversial" topic being brought up yet again
> after having been discussed at great length a number of times before.
> There's no reason I can see for it other than Cecil's religious zeal and
> dogged determination.

The reason is that you are wrong and I have provided expert testimony
that you are wrong. I'm trying to stop you from speading false information
so don't fault me for that. The fact that you refuse to have a technical
discussion with me in spite of the numerous expert postings that
prove you are using an invalid model, speaks volumes. The results
of the spreading of lumped-circuit analysis myths is that you are
hoodwinking the uninitiated.

> Fortunately, some very good, honest, and knowledgeable people have been
> doing a very good job of presenting the facts. These include Tom, W8JI;
> Ian, G3SEK; Wes Stewart, N7WS; and Gene Fuller, W4SZ.

This is an argumentum ad verecundiam, a well known logical
diversion and not a technical argument. I have quoted just as many
experts and you have ignored them. In particular, R.W.P. King is
quoted from "Electromagnetic Engineering": ... for coils whose
wire length exceeds 1/6 wavelength, an adequate representation
of the reactance of a coil is *NOT POSSIBLE* in terms of a coil
with a uniform current [a lumped-element inductance]..."

Roy, my 75m bugcatcher coil, made from 44 feet of wire, is more
than 1/6 wavelength of wire. R.W.P. King says your lumped-circuit
analysis is *NOT POSSIBLE*. He used bold print and underlined the
words, *NOT POSSIBLE*. Ignoring the quotations from the true
experts is just going to leave you ignorantly spreading old wives'
tales. Is that really how you want to be remembered here?

Why are all of you alleged "experts" unwilling to discuss technical quotes
like R.W.P. King's above? Are you afraid that readers will discover
your common mistake which Dr. Corum calls "sophomoric"?

As Dr. Corum says: "There are no standing waves on a lumped
element circuit component. (In fact, lumped-element circuit theory
inherently employs the cosmological presupposition that the speed
of light is infinite, as every EE sophomore should know."

Why do you choose to absolutely ignore that technical knowledge?
--
73, Cecil, W5DXP

2345. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 21:21:37 UTC
From: richardharrison@webtv.net
Message-ID: <23728-44109C61-216@storefull-3254.bay.webtv.net>
Source record: 63507

Roy, W7EL wrote:
"It`s pretty obvious that objects in motion come to rest naturally
without any external force."

I`d want to switch topics from coils to inertia and Newton had I
insisted a coil must have the same current at both ends in an r-f
environment.

Like squid they try to get away in a flood of ink.

Best regards, Richard Harrison, KB5WZI

2346. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 21:29:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duq6n7$s62$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63506

Summary of design of a short loaded vertical antenna.

There is a 90-degree phase shift between the feedpoint and the tip of the antenna.

With a short antenna most of the 90 degree phase shift is due to the loading coil which is, in effect, a transmission line.

The transmission line has Zo, velocity, phase-shift and some attenuation due to radiation resistance plus wire loss resistance.

Radiation resistance and phase-shift are directly proportion to coil length, as are L and C and wire resistance.

Q = Omega*Total Inductance / Total R as is usual. Bandwidth = Resonant Freq / Q.

Radiating efficiency takes into account wire resistance below the coil, coil resistance, resistance of the wire above the coil, plus ground loss resistance, plus the sum of the three radiation resistances. All resistances are referred to the antenna feedpoint.

With short coils, radiation resistance of the coil is usually much less than that due to the length of the wires above and below it. With a helical antenna, wire loss resistance is always greater than its radiation resistance.

At low HF, with a good set of ground radials, the loss resistance of coil wire usually predominates. At high HF, the ground loss usually predominates but the radiation resistance becomes important.

The whole business is calculable. There are few rules of thumb. The only thing which is missing is the radiation pattern. If you don't already know what the radiation pattern is in the vertical plane then Eznec will attend to that. Actually, in the vertical plane, radiation is approximately proportional to the cosine of the elevation angle. The horizontal groundwave is stongest.

Some of the parameters need not be explicitly calculated.

EXAMPLE:

Starting data:
Height of antenna below coil = 2 metres = 79 inches.
Diameter of antenna below coil = 25mm = 1 inch.
Length of antenna above coil = 1 metre = 39 inches.
Diameter of antenna above coil = 10mm = 0.4 inches.
Length of coil = 152mm = 6 inches.

Diameter of coil = 76mm = 3 inches.
Overall antenna height = 3.152 metres = 124 inches = 10.3 feet.
Ground electrode loss resistance = 5 ohms.
Frequency = 3.8 MHz.

Calculated data:
Number of turns on coil = 53
Wire gauge = 13 or 14 awg.
Radiating efficiency = 10 percent.
Loss relative to full-size 1/4-wave vertical = 9.4 dB.
Self-resonant frequency of the coil = 8.2 MHz.
For maximum efficiency the coil is located at 50% of the overall
antenna height.
But there's not much extra loss by using base loading.

For other calculated data use program LOADCOIL which is about 6 years
old and I think I have lost the source code.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

2347. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 21:40:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sh1Qf.28224$2O6.22411@newssvr12.news.prodigy.com>
Source record: 63508

<w8ji@akorn.net> wrote in message
news:1141936980.983089.217740@v46g2000cwv.googlegroups.com...
>
> Cecil Moore wrote:
>
> > What is the traveling wave current delay through the coil in
> > degrees? That's easy to measure. That current delay is the
> > degrees that the coil supplies to the antenna. You can ignore
> > any measurements involving standing wave current as being
> > essentially meaningless. What is important is the traveling-
> > wave current delay through the coil. Please measure it and
> > report what it is for your 'physically small toroid'.
> >
> > Your lumped circuit analysis pre-assumes a zero delay
> > through the coil. That delay is certainly not zero in the real
> > world.
>
> The problem with people doing work to verify this is even if several
> people measure something, Cecil will ignore results.

I will accept what you find as long as long as the method to
obtain the results is valid.. Roy's earlier measurements are
virtually meaningless since he was measuring standing wave
current which doesn't even flow (phase is constant and
fixed around zero degrees). You guys always seem to
make measurements that support your preconceived
notions and avoid measurements that don't

But you have already started what I am asking, Tom. You
measured a voltage phase shift of 60 degrees through a
100uH coil at 1 MHz. The current is known to lag the voltage
through a coil so the current phase delay is more than 60
degrees. I wouldn't be surprised to see it at 120+ degree
lag in the current. So your own experiment proves you are
wrong. How do you get away with such behavior without
anyone noticing?.

(Hint: there are a handful of knowledgeable lurkers who
have noticed.)

When you measured S12, was the load side of the coil
looking into 50 ohms?

In the web pages I previously posted, R.W.P. King, in
"Electromagnetic Engineering", asserts that you cannot
use a lumped circuit analysis on a coil containing 1/6

wavelength of wire. Your 100uH coil above exhibits
60 degrees of phase shift even for the voltage and that's
1/6 wavelength for voltage - even more for current. The
lumped-circuit model assumes that the voltage is traveling
at an infinite speed, faster than light. Since you believe so
strongly in the lumped-circuit model, wonder why your
measurement didn't reflect that fact? :-)
--
73, Cecil, W5DXP

2348. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 21:53:55 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Tt1Qf.28225$2O6.6589@newssvr12.news.prodigy.com>
Source record: 63509

"Richard Harrison" <richardharrison@webtv.net> wrote:
> I`d want to switch topics from coils to inertia and Newton had I
> insisted a coil must have the same current at both ends in an r-f
> environment.

Richard, lest you get nit-picked to death again, let's be clear
that you are talking about a standing-wave r-f environment.

If a coil is installed in a traveling-wave r-f environment, with
no standing waves, the magnitude of the current through the
coil will be the same at both ends, minus losses.

It's the phasor sum of the forward and reflected current phasors
that causes such a large variation in coil current in a standing-
wave r-f environment illustrated by the graphic at:

http://www.qsl.net/w5dxp/qrzgif35.gif

Wonder why none of those resident gurus have bothered to
explain the current distribution in that coil? Have you noticed
my questions about the technical references that I have
provided just keeps piling up with no responses?
--
73, Cecil, W5DXP

2349. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 22:04:16 UTC
From: w8ji@akorn.net
Message-ID: <1141941856.152044.56800@u72g2000cwu.googlegroups.com>
Source record: 63510

Cecil Moore wrote:
> I will accept what you find as long as long as the method to
> obtain the results is valid.. Roy's earlier measurements are
> virtually meaningless since he was measuring standing wave
> current which doesn't even flow (phase is constant and
> fixed around zero degrees).

Roy,

Shame on you for measuring current that doesn't flow through a current transformer.

73 Tom

2350. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 22:38:28 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <E72Qf.28237$2O6.21237@newssvr12.news.prodigy.com>
Source record: 63511

<w8ji@akorn.net> wrote in message
news:1141941856.152044.56800@u72g2000cwu.googlegroups.com...
> Cecil Moore wrote:
> > I will accept what you find as long as long as the method to
> > obtain the results is valid.. Roy's earlier measurements are
> > virtually meaningless since he was measuring standing wave
> > current which doesn't even flow (phase is constant and
> > fixed around zero degrees).
>
> Shame on you for measuring current that doesn't flow through a current
> transformer.

Standing wave net current doesn't flow back and forth
along the wire. That's why they call it a *standing* wave.
Why don't you know that already? At any point on the
wire, the H-fields and E-fields are exchanging energy at
the frequency of operation. That's certainly enough reason
for an inductive pickup to respond.

Why is that a surprise to you or Roy? Because you two
mistakenly thought net standing wave current flows and
ignorantly measured it? All you measured was the
orthogonal exchange of energy between the two fields.
Nothing was moving except the underlying forward and
reflected currents. Isn't this stuff taught anymore?

What have you guys done - gotten together and elected
yourselves into a club of omniscient gurus? Please take
a look at the laws of reflection physics. It appears that
you are ignorant of most of them.
--
73, Cecil, W5DXP

2351. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 22:55:50 UTC
From: w8ji@akorn.net
Message-ID: <1141944950.194014.62210@j33g2000cwa.googlegroups.com>
Source record: 63512

Cecil Moore wrote:

> But you have already started what I am asking, Tom. You
> measured a voltage phase shift of 60 degrees through a
> 100uH coil at 1 MHz. The current is known to lag the voltage
> through a coil so the current phase delay is more than 60
> degrees. I wouldn't be surprised to see it at 120+ degree
> lag in the current. So your own experiment proves you are
> wrong. How do you get away with such behavior without
> anyone noticing?.

The only thing worth noticing is you are misrepresenting facts.

I measured current with a small current transformer, and current at each end of the inductance was, as close as my two-channel vector voltmeter will resolve, equal in phase and equal in level. I read about .695 volts from the current transformer secondary on each end of the coil from the current transformer secondary with zero phase shift.

The only thing shifted in phase was voltage when referenced to the output terminal. The load resistor voltage shifted phase from generator voltage. Of course generator current lagged generator voltage by the same amount.

Well, I guess you are surprised. Now let's hear your personal attack or excuse.

73 Tom

2352. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 23:28:42 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1211ehep8b9i647@corp.supernews.com>
Source record: 63513

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>
>> What is the traveling wave current delay through the coil in
>> degrees? That's easy to measure. That current delay is the
>> degrees that the coil supplies to the antenna. You can ignore
>> any measurements involving standing wave current as being
>> essentially meaningless. What is important is the traveling-
>> wave current delay through the coil. Please measure it and
>> report what it is for your 'physically small toroid'.
>>
>> Your lumped circuit analysis pre-assumes a zero delay
>> through the coil. That delay is certainly not zero in the real
>> world.
>
> The problem with people doing work to verify this is even if several
> people measure something, Cecil will ignore results.
>
> 73 Tom

Indeed. Or alter his interpretation to fit the data. Anyone interested in seeing the results of careful measurements should see the "Current in antenna loading coils controversy (long)" in November 2003, where I made and reported just such measurements. Pay careful attention to Cecil's various predictions of what the results would be using his method of explanation.

Roy Lewallen, W7EL

2353. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 23:40:05 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <p13Qf.533255$qk4.237240@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63514

Cecil,

A few random comments:

* I have done a number of "peer reviews" for IEEE and AIP publications as well as other publications. I have seen comments from the other reviewers. In general peer review is better than nothing, but in many cases it doesn't mean diddly.

* The Tesla coil crowd seems to contain an unusually large fringe. I know nothing of the authors of your latest bible, but in any case I was not particularly impressed with their credentials or their paper. I love the part, "Lumped circuit theory isn't absolute truth, it's only an analytical theory about lumped models". As if their work is somehow absolute truth. (Back to the previous bullet: I have never seen any serious peer-reviewed paper that would contain such a statement.)

* No one is his right mind would think that a Tesla coil with a gazillion closely spaced turns is equivalent to a bugcatcher coil. No one should think that an axial mode helical antenna is equivalent to an ordinary loading coil either.

* You are waaaay too hung up on the subject of standing waves vs. traveling waves. You may have noticed that the standard treatments of antennas in texts and other references barely mention the terms. They merely discuss the actual current in the antenna. The fundamentally important entity in radiation is accelerated charge, just as Tom noted. At any point in an antenna, such as the loaded monopole discussed here, there is simply a current, not a traveling wave or a standing wave. If you could examine the antenna microscopically at a single point you would find electrons sloshing back and forth. You could not tell if the current was represented by a standing wave or a traveling wave. The standing wave description relates to the overall amplitude characteristic of the current when you look at the entire antenna. This amplitude characteristic is certainly important in calculation of details of the radiation field, but it does not change the fundamental property of radiation or the physical processes ongoing in the antenna. It is just plain silly to argue that a standing wave is totally inert and does not flow back and forth.

* Distributed or network models are mathematically convenient for treating complex problems. However, they add precisely zero new information to the underlying physical reality described by Maxwell's equations. They offer no new physics beyond lumped models. They can be misapplied just the same as lumped models can be misapplied. It is generally best to drive a nail with a hammer, but a monkey wrench will

also do the job. It is best to choose the most efficient tool, but that
does not mean others won't work.

73,
Gene
W4SZ

Cecil Moore wrote:
> <w8ji@akorn.net> wrote:
>
>>1.) Cecil wants everyone to start using reflection wave models to
>>analyze every antenna system in the world.
>
>
> No, I simply want you and others to stop using a known invalid
> model for every standing wave antenna system in the world.
> This is a quote from the first web page below: The capital
> letters are where the author used bold italics for emphasis.
>
> "... - no wave interferrence and no standing waves can be
> present on lumped elements. The problem has been that many
> experimenters working with self-resonant helices have
> PURSUED THE CONCEPT OF COIL SELF-
> CAPACITANCE WITHOUT REALLY UNDERSTANDING
> WHERE THE NOTION COMES FROM OR WHY IT WAS
> EVER INVOKED BY ENGINEERS. For that, they will have
> to go read R.W.P. King's wonderful old book, "Electromagnetic
> Engineering, McGraw-Hill, 1945. ... On page 465, the Harvard
> Professor points out that, for coils whose *wire length* exceeds
> 1/6 wavelength, ...'an adequate representation of the reactance
> of a coil with a nonuniformly distributed currentr is NOT
> POSSIBLE in terms of a coil with a uniform current [a lumped
> element inductance] ...' Period. Resonant FIELDS present
> surprises to engineers with limited training."
>
> Certainly sounds like he is talking about you, Tom. "Electronic
> Engineering" was written before you were born. Why are you
> ignorant of the technical facts presented in it?
>
> http://www.ttr.com/corum/index.htm
>
> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf
>
> The .pdf paper is a pier-reviewed publication by the IEEE. Here's
> what it says about the model you have chosen to use.
>
> "Of course, the uniform current assumption has no validity for coils
> operating anywhere near self-resonance!"
>
> "The failure of any limped element circuit model to describe the
> real world lies at its core inherent *presupposition*: the speed of

> light is presumed to be infinite in the wave equation. ... Consequently,
> lumped element circuit theory does not (and cannot) accurately
> embody a world of second order partial differential equations in
> space and time."
>
> "The concept of coil "self-capacitance" is an attempt to circumvent
> transmission line effects on small coils when the current distribution
> begins to depart from its DC behavior."
>
> "There are a great number of formulae for coil self-capacitance.
> None are of particular value for quarter-wave helical resonators
> anywhere near the 90 degree point."
>
> "The delusion is that the short coil is then made to operate in the
> lumped element regime ...".
>
> That you refuse to give up on an invalid method in the face of
> overwhelming evidence is amazing.
>
>
>>What he wants me or others to do is a moot point.
>
>
> Afraid of what you will find? The first web page above says:
> "Lumped circuit theory isn't absolute truth, it's only an analytical
> theory - and in these resonators we have the case where this
> sophmore theory fails experimentally." Do the experiment, Tom,
> and discover exactly how sophmorish you are being.
>
>
>>I am concerned about the commonly held but very incorrect view that
>>current travels through an inductor turn-by-turn, and that a loading
>>inductor somehow shifts the phase of and/or level of current to "make
>>up for missing degrees".
>
>
> Tom, that's what any matching network does. Loading coils are no
> exception.
>
>
>>My only concern is people not understanding how an inductor and short
>>antenna actually behaves.
>
>
> I am concerned about you not understanding, Tom. Don't
> you believe the information posted on those web pages above. Don't
> you think a peer-reviewed IEEE publication that disagrees with you
> is worth a second thought from you. Don't you think ignoring the
> knowledge published by experts in the field is a little naive?
> --

> 73, Cecil, W5DXP
>
>

2354. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 23:47:20 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <fme112tbs4j32obv83v1v2g0tinhtqtosl@4ax.com>
Source record: 63515

On Thu, 09 Mar 2006 17:51:48 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:

>
>"Wes Stewart" <n7ws*@*yahoo.com> wrote
>> if you go here:
>>
>> http://www.k6mhe.com/n7ws
>>
>> and look at either Note 1 or 2 and then look at figures 1 and 2 this
>> might change your mind about the current distribution.
>
>Nobody is disputing the current rise through a coil. In fact, I have
>been pointing it out. The coil does distort the current away from
>the nice cosine envelope of a 1/2WL thin wire dipole.

Why do you persist at doing this?

My post was in response to someone else and you feel it necessary to
jump in with the same old bafflegab.

>
>Your graphs show standing wave current which doesn't flow. (Its
>phase angle doesn't rotate.) Therefore, the magnitude of the standing
>wave current can be any value depending upon where it is located in
>the system. Wes, please take a look at http://www.qsl.net/qrzgif35.gif
>to find out why standing wave current can have any value and is thus
>unimportant. EZNEC plots the current in much the same way that
>you have. So are the EZNEC results wrong and yours right? The
>fact is that a standing wave current plot is close to meaningless.
>Why are we continuing to discuss standing wave current?

Well, I certainly hope that EZNEC plots the current the same. If you
would have read all that I wrote in the reference, you would have see:

"The models were "built" using MultiNEC invoking EZNEC 3.0 (now 4.0)
or double-precision NEC-2 as the calculating engines. The following
graphics were all generated with MultiNEC."

Among the other nice things that MultiNEC does is interface to many
other analysis programs, EZNEC being my preferred one, and gives some
other ways to present -the same data- in other forms. The data in the
figures are EZNEC-calculated-data.

Clearly, you were too busy trying to frame an argument to actually
read what I wrote.

>
>What we need to plot is the forward traveling wave current and
>the reflected traveling wave current which are the two components
>of your standing wave current graphs. Do you have any simulation
>software that will plot the forward current and reflected current?
>Nobody is going to understand what is really happening until we
>get a plot of those two component waves or at least an estimated
>graph of the underlying superposed currents.

"We" need to plot no such thing. You may have such a need; I do not.

>
>In fact, how about your best estimate of a graph of forward and
>reflected currents through the coil including phase shifts? Only
>then are you likely to understand what we are talking about..

If "we" includes you and me, I will never understand what "we" are
talking about, although I am pretty sure what "I'm" talking about.

Now, I've got to get back to something important; building a playhouse
for my granddaughter.

2355. Re: Impedance with T-connector?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-09 23:49:43 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <duqeun$30d$2@engnntp2.cig.mot.com>
Source record: 63518

<n3ox.dan@gmail.com> wrote in message
news:1141835066.693220.100190@j33g2000cwa.googlegroups.com...
> Ken,
>
> I guess that you are using the T-connector simply as an elbow? If this
> is the case, and you put a 50 ohm load on one leg, you should leave the
> other leg *open* to make the impedance be about 50 ohms. The
> T-connector will give you a little bit of capacitance due to the
> concentric conductors on the unused leg, but it will make little to no
> difference until you hit UHF or so.
>
> If you put 50 ohms on one leg and a 50 ohm load on the other, Amos's
> post will apply. The impedance seen by the transmitter will depend on
> the length of transmission line between the T and your transmitter.
> This is because the line between the T and your transmitter is no
> longer properly terminated at the T end.
>
> With very short transmission lines, the situation is just like parallel
> resistors. This means that the two loads on the T will share the
> power.

Regardless of the T-line length, it will be a 2:1 mismatch. If the line
is 1/4 wave long, then the Tx will "see" 100 ohms.

Leaving one end of the "T" open will provide no significant effects up
through UHF, but it does represend a very short section of open line in
parallel, which, as Dan reports, will show as a small capacitance.

This, by the way is a good way to check an SWR meter for accuracy,
providing, of course, the loads you use are pretty good as well. You can
easily do 2:1 and 4:1 (with two "T"s and four loads) if you have them.

P.s. If you needed to, and it was a good 50 ohms, you could use an antenna
for one of the loads.

73, Steve, K9DCI

>
> This is good for things like phased yagis, but you wouldn't want to
> hook an antenna to one port and a dummy to another...
>
> Dan,
> N3OX
> www.n3ox.net
>

2356. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 00:02:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Em3Qf.54724$Jd.33424@newssvr25.news.prodigy.net>
Source record: 63516

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>But you have already started what I am asking, Tom. You
>>measured a voltage phase shift of 60 degrees through a
>>100uH coil at 1 MHz. The current is known to lag the voltage
>>through a coil so the current phase delay is more than 60
>>degrees. I wouldn't be surprised to see it at 120+ degree
>>lag in the current. So your own experiment proves you are
>>wrong. How do you get away with such behavior without
>>anyone noticing?.
>
> The only thing worth noticing is you are misrepresenting facts.

> I measured current with a small current transformer, and current at
> each end of the inductance was, as close as my two-channel vector
> voltmeter will resolve, equal in phase and equal in level.

Here are your words cut and pasted from qrz.com.

> "By the way, I swept S12 phase with my network analyzer on a
> 100uH inductor a few hours ago while working on a phasing
> system. The phase shift through that series inductor was about
> -60 or -70 degrees on 1 MHz, ...

S12 is a voltage parameter. So did the coil show a "-60 or
-70 degrees" voltage phase shift or not? Where does it say
anything about "current with a small current transformer"
in your posting? Last time I looked, a 100uH inductor was
not a small current transformer. I assumed a current
phase shift at first and you jumped on me about that. Now
you say it was a current phase shift after all. If you want
to be quoted correctly, you need to stop fibbing.

Here's what I think happened in context. You were trying to
prove Kraus wrong with his assertion that a 180 degree
phasing coil can be thought of as 1/2WL of wire wound
into a coil. You failed to realize that your posting was
supporting my other point about phase shifts through coils.
So you accidentally posted results that supported my side
of the argument. Your lumped-circuit model predicts zero
phase shift. My distributed network model predicts considerable
phase shift. Your experiment yielded considerable phase shift
and now you seek to deny it. However, it is there in all
its glory on qrz.com for all to see. So feel free to deny it.

> The only thing worth noticing is you are misrepresenting facts.

I never misrepresent facts as I understand them to exist. The fact that you absolutely refuse to engage me in a technical discussion speaks volumes. If I were wrong, you would simply engage me and prove me wrong with a technical argument as you have so many others. But If I am right, I fully understand your reluctance to engage me in a technical discussion.

You can start the technical discussion by explaining the EZNEC results on my web page:

http://www.qsl.net/qrzgif35.gif

Why are all you gurus so reluctant to discuss that topic? I have asked you guys to respond to that graphic at least half a dozen times and got only one weak reply. Why the silence?
--
73, Cecil http://www.qsl.net/w5dxp

2357. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 00:07:07 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Lq3Qf.54743$Jd.597@newssvr25.news.prodigy.net>
Source record: 63517

Roy Lewallen wrote:

> w8ji@akorn.net wrote:
>> The problem with people doing work to verify this is even if several
>> people measure something, Cecil will ignore results.
>
> Indeed. Or alter his interpretation to fit the data.

I can't help but point out that you guys are refusing to engage
me in any technical discussion and refusing to respond to my
technical quotes. All you do is engage in desperate ad hominem
attacks hoping that your guru status will prevail. That's a pretty
good indication that you have already lost the technical argument
and know it.
--
73, Cecil http://www.qsl.net/w5dxp

2358. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 00:36:17 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1211ig3hafcm451@corp.supernews.com>
Source record: 63519

Gene Fuller wrote:
>
> Cecil Moore wrote:
>>. . .
>> "... - no wave interferrence and no standing waves can be
>> present on lumped elements. The problem has been that many
>> experimenters working with self-resonant helices have
>> PURSUED THE CONCEPT OF COIL SELF-
>> CAPACITANCE WITHOUT REALLY UNDERSTANDING
>> WHERE THE NOTION COMES FROM OR WHY IT WAS
>> EVER INVOKED BY ENGINEERS. For that, they will have
>> to go read R.W.P. King's wonderful old book, "Electromagnetic
>> Engineering, McGraw-Hill, 1945. ... On page 465, the Harvard
>> Professor points out that, for coils whose *wire length* exceeds
>> 1/6 wavelength, ...'an adequate representation of the reactance
>> of a coil with a nonuniformly distributed currentr is NOT
>> POSSIBLE in terms of a coil with a uniform current [a lumped
>> element inductance] ...' Period. Resonant FIELDS present
>> surprises to engineers with limited training."
>>
>> Certainly sounds like he is talking about you, Tom. "Electronic
>> Engineering" was written before you were born. Why are you
>> ignorant of the technical facts presented in it?

I have this book. The condition for the quoted result isn't simply that the length of wire in the coil be adequately long, but also that the coil be wound loosely enough so that the coupling between turns is poor enough to allow a particular nonuniform current distribution. It applies to a "loosely wound helix." The quote is within a section titled "'Lumped' Constants in Near-zone circuits", which contains a detailed analysis of just what conditions can cause an inductor to have unequal input and output currents, but primarily how the currents can be unequal even in the absence of an external field. In particular, the author describes an inductor in which the coupling between turns isn't sufficient to force equal currents at the coil ends. Qualitatively, this should be pretty obvious: If we begin with a long wire (in terms of wavelength), the current will vary along its length. As we wind it into a loose coil, mutual coupling between turns will create inductance and make the current more uniform, but with a distribution still resembling that of the straight wire. It's this situation that the quotation applies to -- an inductor so loosely wound that its current distribution resembles a straight wire more than an inductance. He does go on to say that if the winding is tighter but still not ideal, the resulting non-uniform current, which has a different distribution (greater at the

center than at the ends), can be modeled by means of a lumped self capacitance. Only if we have perfect coupling between turns (as a toroid very nearly represents) will we truly have equal currents at input and output, for the reasons Tom recently explained. This is the idealized inductance which some of the contributers to this discussion are having trouble understanding.

The mathematical treatment in King is quite complex. But nowhere does he mention any traveling, reflected, or standing current, power, or energy waves, or that an inductance behaves any differently in an antenna than in a lumped circuit. It simply isn't necessary or relevant to explaining the operation of either an ideal or non-ideal inductor. Nor does he dispute the fact that the currents into and out of an ideal inductance are equal. And of course there's no mention of the mysterious "resonant fields" which probably do surprise engineers, as does the metaphysics being promoted here.

Roy Lewallen, W7EL

2359. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 01:01:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Ud4Qf.57699$dW3.3635@newssvr21.news.prodigy.com>
Source record: 63520

Gene Fuller wrote:
> * I have done a number of "peer reviews" for IEEE and AIP publications
> as well as other publications. I have seen comments from the other
> reviewers. In general peer review is better than nothing, but in many
> cases it doesn't mean diddly.

Translation: If they don't agree with Gene Fuller, they don't mean
diddly. :-)

> * No one is his right mind would think that a Tesla coil with a
> gazillion closely spaced turns is equivalent to a bugcatcher coil.

On the contrary, Gene, my 75m bugcatcher meets the minimum
definition of a Tesla coil on 9-10 MHz where it is 1/4WL
self-resonant, i.e 90 degrees. It is a good 78 degrees on
75m which is not all that far from its self-resonant point.

> * You are waaaay too hung up on the subject of standing waves vs.
> traveling waves.

So uttered by the priest of the high-and-mighty lumped-constant
religious sect. :-) The lumped-circuit model is known to fail in
a standing-wave environment. Anyone using it in a standing-wave
environment is doomed to failure. Those are known facts. What
is it about those statements that you don't understand?

> At any point in an antenna, such as the loaded monopole discussed here,
> there is simply a current, not a traveling wave or a standing wave.

Gene, if you want to assert that the current on a standing wave
antenna is not a standing wave, be my guest. The standing wave
on a 1/2WL dipole is why it radiates broadside. If it were a
traveling wave, it would be an end-fire. Standing wave current
is NOT traveling wave current and vice versa. I'm not even sure
that "standing-wave current" even meets the definition of
"current". If it's not flowing, is it really current? It appears
to me to be more of a wet dream than anything real.

> If
> you could examine the antenna microscopically at a single point you
> would find electrons sloshing back and forth.

But we are not interested in Brownian motion, are we? We are
only interested in the net charge flow and that is zero on a
standing wave antenna with equal coherent currents flowing
in opposite directions.

> You could not tell if the
> current was represented by a standing wave or a traveling wave.

Say what? If voltage/current maximums/minimums exist, then a
standing wave exists. Admittedly, if you were an individual
electron, you would have trouble discerning the difference.
But Gene, if you really are an individual electron, please
explain to the group how you manage to depress the keyboard
keys?

> It is just plain silly to argue that a standing wave is totally inert
> and does not flow back and forth.

Where did that word, "inert", come from? Not from me. Do I
smell a straw man arising?

When you have equal magnitude coherent waves flowing in opposite
directions in a wire, do you really want to assert that there is
a net charge flow or a net current flow along the wire? If so, be
my guest and please prove it.

> * Distributed or network models are mathematically convenient for
> treating complex problems. However, they add precisely zero new
> information to the underlying physical reality described by Maxwell's
> equations.

Exactly correct!

> They offer no new physics beyond lumped models.

Exactly incorrect. Lumped-circuit models are a subset of distributed-
network models. Distributed-network models are a subset of Maxwell's
equations. Lumped-circuit models are known to fail in the presence
of standing waves. That is what the whole argument here is about.
Some people have adopted the lumped-circuit model as their religion
and they will attempt to put anyone who disagrees with them under
house arrest, as happened to Galileo, e.g. W7EL has 'ploinked' me
and uses his guru status to take unfair potshots at me from time
to time.

What we have on this newsgroup is a gang of junk yard dog gurus who
don't care if they are right or wrong. They just attack anyone who
disagrees with their postings whether right or wrong. (It's not ad
hominem when it's the truth and any knowledgeable person following
this discussion recognizes that as the truth.)

I would like to request that everyone stop the ad hominem attacks,
(me included), and engage in a civil gentlemanly technical
discussion. If I am so wrong, I should be easy prey for 4+
distinguished gurus. OTOH, if I am right, I understand the reluctance
to engage me on a technical level and fully understand the ad hominem
attacks to be a face-saving necessity. So which will it be? The
response to my technical quotes and assertions has, so far, been
underwhelming. Shouldn't half a dozen omniscient gurus be able to

dispatch a mere mortal grasshopper?
--
73, Cecil http://www.qsl.net/w5dxp

2360. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 01:14:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Kp4Qf.57700$dW3.47677@newssvr21.news.prodigy.com>
Source record: 63521

Wes Stewart wrote:
> Why do you persist at doing this?
>
> My post was in response to someone else and you feel it necessary to
> jump in with the same old bafflegab.

This is a public forum. Why do you not respond to my posting on
a technical level instead of resorting to an ad hominem attack?
I have tons of technical references to support my position.

> Clearly, you were too busy trying to frame an argument to actually
> read what I wrote.

I only respond to portions I disagree with, Wes. Why can't
you and I have a simple, point by point, technical discussion?

> "We" need to plot no such thing. You may have such a need; I do not.

You, nor your cohorts, are likely to understand what's really
happening until you take a look at the individual underlying
currents that superpose to form the standing wave current which
doesn't flow at all since its phase angle is fixed at zero degrees.

Isn't a bunch of IEEE PhD's saying that "the lumped-circuit model
fails in a standing-wave environment", enough evidence for you to
consider that they know what they are talking about?
--
73, Cecil http://www.qsl.net/w5dxp

2361. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 02:12:08 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Yf5Qf.28277$2O6.3764@newssvr12.news.prodigy.com>
Source record: 63522

Roy Lewallen wrote:
> It applies to a "loosely wound helix."

Please define the point at which a "loosely wound helix" with
a varying current turns into this lumped-circuit device that
forces equal currents through the coil. Is a 75m bugcatcher
coil a "loosely wound helix" or a "lumped-circuit"?
(My 75m bugcatcher coil is about 1/6 wavelength of wire.)

> Only if we have perfect coupling between turns (as a toroid
> very nearly represents) will we truly have equal currents at input and
> output, for the reasons Tom recently explained. This is the idealized
> inductance which some of the contributers to this discussion are having
> trouble understanding.

Unfortunately, an idealized inductance is like a lossless transmission
line - it exists only in the human mind. What I would like to know is
what is the real-world phase shift through your toroidal inductor when
there is only a traveling wave (no standing wave). We can then use
the laws of reflection physics to determine what effect that phase
shift has on the amplitude of the standing wave current which is the
phasor sum of the forward current and reflected current. I'm actually
going to make those measurements as soon as I get off my old lazy ass.

Seems to me that although a toroidal current pickup may not have the
same magnitude characteristics because of variations in the permeability,
the phase would suffer no such effects. Am I correct on that point?
I'm somewhat handicapped in having no current probes for my 100 MHz
Leader and acquiring them would put a big dent in my Social Security
check. :-)

What I am toying with is a 6m rhombic. I could run it as a terminated
traveling-wave antenna or unterminate it and have a standing-wave
antenna. I could move all kinds of coil(s) up and down the the elements
to place them at nodes or loops or in-between and take measurements.
What do you think?
--
73, Cecil http://www.qsl.net/w5dxp

2362. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 03:03:30 UTC
From: w8ji@akorn.net
Message-ID: <1141959810.308504.202590@u72g2000cwu.googlegroups.com>
Source record: 63523

Cecil Moore wrote:

> Here are your words cut and pasted from qrz.com.
> > "By the way, I swept S12 phase with my network analyzer on a
> > 100uH inductor a few hours ago while working on a phasing
> > system. The phase shift through that series inductor was about
> > -60 or -70 degrees on 1 MHz, ...

> S12 is a voltage parameter. So did the coil show a "-60 or
> -70 degrees" voltage phase shift or not?

It did. Just as I posted here it did.

>Where does it say
> anything about "current with a small current transformer"
> in your posting?

It didn't. As I kept telling you in that thread, I didn't want to talk to you until you were able to make a post without resorting to personal attacks. I also told you I was busy with work, and didn't have time to deal with the same old circular arguments with you.

> Last time I looked, a 100uH inductor was
> not a small current transformer. I assumed a current
> phase shift at first and you jumped on me about that. Now
> you say it was a current phase shift after all. If you want
> to be quoted correctly, you need to stop fibbing.

Please stop trying to blame your mistakes on me! It's not my fault you assumed more than you read! I've been telling you all along current at each end of ANY small inductor has the same phase. I've been telling you all along I didn't want to talk to you until you learn to behave.

Don't accuse me of lying because you made up a theory and it is dead wrong! It isn't MY fault you painted yourself in a corner by adjusting your theories to suit what you thought was said, when it wasn't even said.

> Here's what I think happened in context. You were trying to
> prove Kraus wrong with his assertion that a 180 degree
> phasing coil can be thought of as 1/2WL of wire wound
> into a coil. You failed to realize that your posting was
> supporting my other point about phase shifts through coils.

"Here's what I think" is correct Cecil. In your mind Cecil, it's always all about the other guy failing, being wrong and knowing better, or being dishonest.

> So you accidentally posted results that supported my side
> of the argument. Your lumped-circuit model predicts zero
> phase shift. My distributed network model predicts considerable
> phase shift. Your experiment yielded considerable phase shift
> and now you seek to deny it. However, it is there in all
> its glory on qrz.com for all to see. So feel free to deny it.

Anyone can read anything. I'd wager you anything you like multiple people on this list can make a small current transformer, measure current at each terminal of a compact inductor, and find the phase of current essentially the same at each end.

It isn't about me Cecil. It isn't about Kraus. It isn't about QRZ. It isn't about Roy or anyone else. It's all about how a two terminal inductor acts! That can be proven over and over again, and it will always come out the same. Neither you nor I can change how things work.

> I never misrepresent facts as I understand them to exist. The
> fact that you absolutely refuse to engage me in a technical
> discussion speaks volumes.

It does indeed. If you stayed away from personal attacks I would converse with you. I've told you that over and over again. People who say things on Internet they wouldn't say face to face wear on my nerves. I find it very difficult to remain civil when reading constant personal attacks.

>If I were wrong, you would simply
> engage me and prove me wrong with a technical argument as you
> have so many others. But If I am right, I fully understand your
> reluctance to engage me in a technical discussion.
> You can start the technical discussion by explaining the
> EZNEC results on my web page:

1.) We really can't have a good conversation until you stop the constant personal attacks, and until we agree on a few basics.

2.) You claim Roy measured current that doesn't flow. That area needs addressed.

3.) You also claim significant current phase shift exists between the terminals of a compact inductor operated well below self-resonance.

It's very simple to measure current and voltage and the phase relationships in a two terminal device and prove you are wrong.

Trying to divert the issue to me not following your commands and orders just won't go far.

The current flowing into one end and out of the other end of a small lumped inductor operated far below self-resonance is essentially equal in both phase and amplitude. You say it isn't, I say it is, and I can prove it beyond any doubt to any open minded person.

I say I can easily build a loading coil that acts the same way. I can replace 40 or 60 degrees of electrical height with an inductor that has virtually no phase shift in current between the two terminals, and virtually the same current level. I can prove that also.

I'm just not sure I can prove anything to someone who thinks a current transformer measures current that doesn't flow!

73 Tom

2363. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 03:12:11 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <f86Qf.6171$sp4.5108@trnddc01>
Source record: 63524

Hi Cecil

I have a HP8405A Vector Voltmeter I'll give you and even pay the shipping
if that is of any help with the measurements.

Jerry

"Cecil Moore" <mycall@arrl.net> wrote in message
news:Yf5Qf.28277$2O6.3764@newssvr12.news.prodigy.com...
> Roy Lewallen wrote:
>> It applies to a "loosely wound helix."
>
> Please define the point at which a "loosely wound helix" with
> a varying current turns into this lumped-circuit device that
> forces equal currents through the coil. Is a 75m bugcatcher
> coil a "loosely wound helix" or a "lumped-circuit"?
> (My 75m bugcatcher coil is about 1/6 wavelength of wire.)
>
>> Only if we have perfect coupling between turns (as a toroid very nearly
>> represents) will we truly have equal currents at input and output, for
>> the reasons Tom recently explained. This is the idealized inductance
>> which some of the contributers to this discussion are having trouble
>> understanding.
>
> Unfortunately, an idealized inductance is like a lossless transmission
> line - it exists only in the human mind. What I would like to know is
> what is the real-world phase shift through your toroidal inductor when
> there is only a traveling wave (no standing wave). We can then use
> the laws of reflection physics to determine what effect that phase
> shift has on the amplitude of the standing wave current which is the
> phasor sum of the forward current and reflected current. I'm actually
> going to make those measurements as soon as I get off my old lazy ass.
>
> Seems to me that although a toroidal current pickup may not have the
> same magnitude characteristics because of variations in the permeability,
> the phase would suffer no such effects. Am I correct on that point?
> I'm somewhat handicapped in having no current probes for my 100 MHz
> Leader and acquiring them would put a big dent in my Social Security
> check. :-)
>
> What I am toying with is a 6m rhombic. I could run it as a terminated
> traveling-wave antenna or unterminate it and have a standing-wave
> antenna. I could move all kinds of coil(s) up and down the the elements
> to place them at nodes or loops or in-between and take measurements.
> What do you think?

> --
> 73, Cecil http://www.qsl.net/w5dxp

2364. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 04:16:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <847Qf.74776$PL5.71405@newssvr11.news.prodigy.com>
Source record: 63525

w8ji@akorn.net wrote:
> Please stop trying to blame your mistakes on me! It's not my fault you
> assumed more than you read! I've been telling you all along current at
> each end of ANY small inductor has the same phase.

Please define "small" in terms of the number of degrees of phase
shift measured using a traveling wave signal.

> Don't accuse me of lying because you made up a theory and it is dead
> wrong! It isn't MY fault you painted yourself in a corner by adjusting
> your theories to suit what you thought was said, when it wasn't even
> said.

Your diversions are comical and obvious, Tom. Thanks for
the laugh.

> If you stayed away from personal attacks I would converse with you.

Pot, Kettle. Kettle, Pot. Tom, your personal attacks are legend
throughout the internet and world wide web. I know hams who
are too terrified to respond to you even when you are wrong.

> 1.) We really can't have a good conversation until you stop the
> constant personal attacks, and until we agree on a few basics.

Hard to accomplish since you define being proven technically wrong
as a personal attack.

> 2.) You claim Roy measured current that doesn't flow. That area needs
> addressed.

Please explain how a net current with a fixed constant
non-rotating phase can possibly flow. Please explain
how a wire with 1 amp flowing in one direction and 1 amp
flowing in the other direction supports a net charge flow.

> 3.) You also claim significant current phase shift exists between the
> terminals of a compact inductor operated well below self-resonance.

Please define "compact" in terms of the number of degrees
of phase shift measured using a traveling wave.

> It's very simple to measure current and voltage and the phase
> relationships in a two terminal device and prove you are wrong.

I've got many technical references that disagree. If you can do
that, why haven't you done that?

> The current flowing into one end and out of the other end of a small
> lumped inductor operated far below self-resonance is essentially equal
> in both phase and amplitude.

Please define "small" as the number of degrees of phase shift
measured using a traveling wave.

> You say it isn't, I say it is, and I can
> prove it beyond any doubt to any open minded person.

Here, you are just out and out lying since I never said that.
Want to bet $1000 that you can prove I ever said that? I didn't
think so. What is with this compulsion you have to lie about
what I have said? Can't you win a technical argument without
lying?

> I say I can easily build a loading coil that acts the same way. I can
> replace 40 or 60 degrees of electrical height with an inductor that has
> virtually no phase shift in current between the two terminals, and
> virtually the same current level. I can prove that also.

I seriously doubt that. Please measure the phase shift using a
traveling wave through any coil that accomplishes that function.
I suspect you are being fooled by the current loop located inside
the coil and the fact that you have been ignorantly been measuring
the net standing wave current which is essentially irrelevant.

> I'm just not sure I can prove anything to someone who thinks a current
> transformer measures current that doesn't flow!

I explained it to you, Tom, in another posting. If you don't
understand it, you need technical help. At a fixed point on a wire
(where no net current or net charge is flowing) that is experiencing
a constant exchange of H-field energy with E-field energy every
cycle, a toroidal pickup coil will certainly report the results of
that orthogonal energy exchange between the fields even though there
is no lateral flow of net current or net charge. That's why a
standing-wave dipole radiates broadside and a traveling-wave
dipole is an end-fire. What school did you say you attended?
--
73, Cecil http://www.qsl.net/w5dxp

2365. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 04:23:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Ha7Qf.74777$PL5.40252@newssvr11.news.prodigy.com>
Source record: 63426

Jerry Martes wrote:
> I have a HP8405A Vector Voltmeter I'll give you and even pay the shipping
> if that is of any help with the measurements.

Wow, thanks for the offer. That would certainly be more
accurate than eyeballing an o'scope. Do you think the
use of such would prove me right or wrong? Does the
VV compare two signals and report the phase difference?
Are the probes differential or coaxial? I've never used
a VV.
--
73, Cecil http://www.qsl.net/w5dxp

2366. Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 04:28:12 UTC
From: jawod <jawod@fuse.net>
Message-ID: <26f31$44110069$42a1bfc2$15706@FUSE.NET>
Source record: 63427

I know this has been addressed on the group before but I remain confused.

I will string a dipole in the trees. The coax shield will be earth grounded, as well as the balun and lightening arrestor.

Now, in the 2nd floor shack, I've read that running a ground line from equipment 15 feet or more (in this case) to an earth ground will bring RF into the shack and be a potent source for TVI, etc.

My choice, then, is to use the ground on the mains.

Given that the shield is earth grounded on the antenna and the equipment is grounded to the mains, isn't this a good scenario for ground loop?

Seems like a catch-22.

My own gut says safety first, lower risk of RF issues after-the-fact by
? what ?

I remember suggestions of coiling the ground wire in an RF choke, multiple ground lines of various lenghts to mess with harmonics. Ferrite beads? Chicken blood and a black cat?

John

2367. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 04:33:59 UTC
From: Chris W <1qazse4@cox.net>
Message-ID: <_k7Qf.30551$2c4.20716@dukeread11>
Source record: 63428

Litzendraht wrote:

>>Yep, that is exactly what I am looking for, with no luck so far. I have
>>some 1.2, 1.6 and 2.4 ghz antennas I want to tune.
>>Chris W
>>KE5GIX
>>
>>
>
>
>Chris,
>
> If it's exactly what you're looking for, I have a hand full of these
>things. It's a Sage 1021H adapter and has a front end that looks like a
>UG 21 and a BNC on the rear. The BNC unscrews and you install the 1N21
>like a .22 round , and screw it back together. It's not a tiny assembly
>and measures 62mm in length (just shy of 2.5 inches).
>
>I found it listed on line at A-Comm Electronics and they say it's good
>to 12.4 kmc.
>
>If it's something you really could use, I could send you a couple at a
>fair price.
>
>But I'm surprised that anyone nowdays would be using a full sized type
>N connector for anything other than moderate powered transmitting.
>
>
I had to do some research to find out that a UG 21 is just and N
connector. I'm not sure why you are surprised people are using them.
The are about the same size connector as a UHF which is very common in
ham radio, and the N is a much better connector. I put N connectors on
all of my antennas, especially if they are going to be out side. But
yes I would be interested in one of those Sage 1021H adapters. I have a
few extra 1N21 diodes if you want to make a trade or I can just send
money. Do you take paypal? Let me know what you want for them.

--
Chris W
KE5GIX

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2368. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 04:52:18 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <6C7Qf.30158$G%2.26187@trnddc07>
Source record: 63429

"Cecil Moore" <mycall@arrl.net> wrote in message
news:Ha7Qf.74777$PL5.40252@newssvr11.news.prodigy.com...
> Jerry Martes wrote:
>> I have a HP8405A Vector Voltmeter I'll give you and even pay the shipping
>> if that is of any help with the measurements.
>
> Wow, thanks for the offer. That would certainly be more
> accurate than eyeballing an o'scope. Do you think the
> use of such would prove me right or wrong? Does the
> VV compare two signals and report the phase difference?
> Are the probes differential or coaxial? I've never used
> a VV.
> --
> 73, Cecil http://www.qsl.net/w5dxp

Hi Cecil

I dont know how to use a VV either. I got a couple of them from Pacific Missile Range surplus. One has a probe sheared off. I figured I could build a "pair of probes" to make that one work for myself. You are welcome to have the other. That one looks complete.
It sure would be worth the effort to ship it to you if you'd like to have it.
I cant guarentee that the 8405A works but I do know they are repairable.
If you are willing to check it out, its yours.
I downloaded a manual for the unit. E-mail me your address. Maybe you can tell me something about the unit after you figure it out.

I have such a high respect for Roy and Wes that it is not possible for me to think they'd both be wrong while in agreement. And, I like to read your discussions on this group so much that I'd offer anything I can to assist your 'getting some measurements made'. I am absolutely sure all you guys will agree on this stuff after you make some measurements. You are all too bright to have such severe differences in understanding on this subject.

Jerry j.jmartes@verizon.net

2369. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 05:10:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <4T7Qf.74779$PL5.8875@newssvr11.news.prodigy.com>
Source record: 63430

Jerry Martes wrote:
> It sure would be worth the effort to ship it to you if you'd like to have
> it.

I hate to accept it for free. Maybe I could just borrow it
for awhile?

> I have such a high respect for Roy and Wes that it is not possible for me
> to think they'd both be wrong while in agreement.

So why are you offering a free VV to someone they both hate? :-)
--
73, Cecil http://www.qsl.net/w5dxp

2370. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 05:41:31 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <rk3212poj1esmvggb7rjprif6vbek0rp4v@4ax.com>
Source record: 63431

On Fri, 10 Mar 2006 04:23:03 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Jerry Martes wrote:
>> I have a HP8405A Vector Voltmeter I'll give you and even pay the shipping
>> if that is of any help with the measurements.
>
>Wow, thanks for the offer. That would certainly be more
>accurate than eyeballing an o'scope. Do you think the
>use of such would prove me right or wrong? Does the
>VV compare two signals and report the phase difference?
>Are the probes differential or coaxial? I've never used

The VVM probes are comprised of a quad diode sampling bridge followed by an FET amplifier. They are nominally coaxial, although without the BNC adapters, they have an exposed pin (very delicate) and at lower frequencies they can be used much as a high impedance scope probe is used.

The instrument uses a phase-locked oscillator to drive the samplers with the "A" probe being the reference. One meter can be switched to display the amplitude of either channel and the second meter reads the phase difference between them.

2371. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 05:45:15 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <vd4212h6oc3pfs35r62853tli94a2ee6ec@4ax.com>
Source record: 63432

On Fri, 10 Mar 2006 05:10:24 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Jerry Martes wrote:
>> It sure would be worth the effort to ship it to you if you'd like to have
>> it.
>
>I hate to accept it for free. Maybe I could just borrow it
>for awhile?
>
>> I have such a high respect for Roy and Wes that it is not possible for me
>> to think they'd both be wrong while in agreement.
>
>So why are you offering a free VV to someone they both hate? :-)

I don't hate you. While I shook your hand at Flagstaff once, I don't know you well enough personally to get all worked about you one way or another.

This is Usenet, not the real world. No sense taking it too seriously.

2372. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 06:05:38 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <el4212hq0bk4592g8j06u5q04ki1n0elhl@4ax.com>
Source record: 63433

On Fri, 10 Mar 2006 01:14:18 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Wes Stewart wrote:
>> Why do you persist at doing this?
>>
>> My post was in response to someone else and you feel it necessary to
>> jump in with the same old bafflegab.
>
>This is a public forum. Why do you not respond to my posting on
>a technical level instead of resorting to an ad hominem attack?
>I have tons of technical references to support my position.
>
>> Clearly, you were too busy trying to frame an argument to actually
>> read what I wrote.
>
>I only respond to portions I disagree with, Wes. Why can't
>you and I have a simple, point by point, technical discussion?

Which points? You are the master at selective editing. For example
you stated:

"Your graphs show standing wave current which doesn't flow...blah
blah"

When I show otherwise, snip, gone without reply.

>
>> "We" need to plot no such thing. You may have such a need; I do not.
>
>You, nor your cohorts, are likely to understand what's really
>happening until you take a look at the individual underlying
>currents that superpose to form the standing wave current which
>doesn't flow at all since its phase angle is fixed at zero degrees.

I have no "cohorts" here. This isn't the "Let's get Cecil" gang.

>
>Isn't a bunch of IEEE PhD's saying that "the lumped-circuit model
>fails in a standing-wave environment", enough evidence for you to
>consider that they know what they are talking about?

I've worked with lots of PhD's. Hell I even had one working for me
and his was in Nuclear Physics from Trinity College at Oxford. He was
a lovely old guy, the quintessential Einstein type, who couldn't find
his way to the men's room without directions. Another, younger one
was so impressed with himself, it was impossible to have a
conversation with him without him saying, "When I was working on my

thesis..."

Pass him in the hall and say, "Nice day today."

He would reply, "Yes, it is but I remember a day back when I was working on my thesis..."

Sorry, "A bunch of IEEE PhD's" impresses me less than a handful of the guys posting here.

2373. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 06:09:11 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <j45212dga5i6fe29jmkv48pt6494i24rks@4ax.com>
Source record: 63434

On Thu, 09 Mar 2006 23:28:12 -0500, jawod <jawod@fuse.net> wrote:

>I know this has been addressed on the group before but I remain confused.
>
>I will string a dipole in the trees. The coax shield will be earth
>grounded, as well as the balun and lightening arrestor.

The BalUn? As for each, or the rest, where will that ground be? Back
in the shack? Out below the antenna?

>Now, in the 2nd floor shack, I've read that running a ground line from
>equipment 15 feet or more (in this case) to an earth ground will bring
>RF into the shack and be a potent source for TVI, etc.

Poor choice of reading. It should have been extensive enough to
resolve your confusion.

>My choice, then, is to use the ground on the mains.

Not always the best choice, but all such considerations have issues.

>Given that the shield is earth grounded on the antenna and the equipment
> is grounded to the mains, isn't this a good scenario for ground loop?

You better believe it.

>Seems like a catch-22.
>
>My own gut says safety first, lower risk of RF issues after-the-fact by
>? what ?

You first have to figure out what ground means.

>I remember suggestions of coiling the ground wire in an RF choke,
>multiple ground lines of various lenghts to mess with harmonics.
>Ferrite beads? Chicken blood and a black cat?

Hi John,

A dipole certainly doesn't need a ground connection. Neither does a
choke or BalUn. The lightning arrestor - obviously. But you are not
going to do that through house wiring.... are you? No. So where?

Starting with that last point, the ground needs to be close by the
arrestor, and given the coax can be laid out anywhere, it may as well
pass nearby your service ground where you can provide a short ground
lead to the arrestor.

Then follows the possibility of the ground loop. This will only arise if the safety ground carries current (it shouldn't) or the neutral return to that service ground does, and has some resistance to boot. It stands to reason there will be current, what remains to be seen is if there is appreciable resistance (a poor connection).

Try as you might to avoid it, you WILL have a ground connection to the service ground from your rig (unless you are floating free on battery power and have absolutely no other accessories going to your rig). When you connect your arrestor to ground, this will guarantee a loop configuration. Any potential (pun intended) problem is strictly a matter of this resistance and current.

I'll cut it short with this as questions are sure to follow.

73's
Richard Clark, KB7QHC

2374. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 06:19:44 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <4U8Qf.22779$eP4.5538@trnddc05>
Source record: 63435

"Cecil Moore" <mycall@arrl.net> wrote in message
news:4T7Qf.74779$PL5.8875@newssvr11.news.prodigy.com...
> Jerry Martes wrote:
>> It sure would be worth the effort to ship it to you if you'd like to have
>> it.
>
> I hate to accept it for free. Maybe I could just borrow it
> for awhile?
>
>> I have such a high respect for Roy and Wes that it is not possible for me
>> to think they'd both be wrong while in agreement.
>
> So why are you offering a free VV to someone they both hate? :-)
> --
> 73, Cecil http://www.qsl.net/w5dxp

Hi Cecil

There is no reason to ever return any of the stuff I send out. I
actually enjoy knowing that someone appreciates this stuff. I dont pay $$
for it. It gets surplused by the government. My buddy buys it in bulk.
I am able to refurbish alot of the surplus he buys, like 100 KW gen-sets, so
he can re-sell the units back to them. Since I enjoy learning how to fix
the broken stuff, I dont charge for my time. So, he lets me sort thru his
"scrap piles". Everyone wins. But, I dont get to watch much TV because
I keep too busy learning how to fix the stuff.

Send me your shipping address. The HP 8405A will be in the mail within a
day after I get the address.

Do you have any use for a HP 8660 signal generator main frame, *no*
plug-ins? That would sure be a nice generator to go with a Vector
Voltmeter. I have 5 main frames but I havent been able to win an eBay bid
for the plug-ins.

Jerry

2375. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 06:24:48 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <QY8Qf.22875$eP4.7604@trnddc05>
Source record: 63436

"Wes Stewart" <n7ws*@*yahoo.com> wrote in message
news:el4212hq0bk4592g8j06u5q04ki1n0elhl@4ax.com...
> On Fri, 10 Mar 2006 01:14:18 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>Wes Stewart wrote:
>>> Why do you persist at doing this?
>>>
>>> My post was in response to someone else and you feel it necessary to
>>> jump in with the same old bafflegab.
>>
>>This is a public forum. Why do you not respond to my posting on
>>a technical level instead of resorting to an ad hominem attack?
>>I have tons of technical references to support my position.
>>
>>> Clearly, you were too busy trying to frame an argument to actually
>>> read what I wrote.
>>
>>I only respond to portions I disagree with, Wes. Why can't
>>you and I have a simple, point by point, technical discussion?
>
> Which points? You are the master at selective editing. For example
> you stated:
>
> "Your graphs show standing wave current which doesn't flow...blah
> blah"
>
> When I show otherwise, snip, gone without reply.
>
>>
>>> "We" need to plot no such thing. You may have such a need; I do not.
>>
>>You, nor your cohorts, are likely to understand what's really
>>happening until you take a look at the individual underlying
>>currents that superpose to form the standing wave current which
>>doesn't flow at all since its phase angle is fixed at zero degrees.
>
> I have no "cohorts" here. This isn't the "Let's get Cecil" gang.
>
>>
>>Isn't a bunch of IEEE PhD's saying that "the lumped-circuit model
>>fails in a standing-wave environment", enough evidence for you to
>>consider that they know what they are talking about?
>
> I've worked with lots of PhD's. Hell I even had one working for me

> and his was in Nuclear Physics from Trinity College at Oxford. He was
> a lovely old guy, the quintessential Einstein type, who couldn't find
> his way to the men's room without directions. Another, younger one
> was so impressed with himself, it was impossible to have a
> conversation with him without him saying, "When I was working on my
> thesis..."
>
> Pass him in the hall and say, "Nice day today."
>
> He would reply, "Yes, it is but I remember a day back when I was
> working on my thesis..."
>
> Sorry, "A bunch of IEEE PhD's" impresses me less than a handful of the
> guys posting here.
>

Hi Wes

The more I read your posts the more I like the way you think.

Jerry

2376. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 09:30:43 UTC
From: w8ji@akorn.net
Message-ID: <1141983043.843913.310960@u72g2000cwu.googlegroups.com>
Source record: 63437

Cecil Moore wrote:

> Please explain how a net current with a fixed constant
> non-rotating phase can possibly flow. Please explain
> how a wire with 1 amp flowing in one direction and 1 amp
> flowing in the other direction supports a net charge flow.

Once again this indicates you are not familiar or comfortable with basics, and have gotten ahead of yourself by going off somehwre in a land of reflected waves. Now you are confused, and can't make sense of basics.

The generator sees a reactive load. When the generator sees a reactive load, current and voltage are no longer in step. This is true all through the system from source to load.

> > 3.) You also claim significant current phase shift exists between the
> > terminals of a compact inductor operated well below self-resonance.
>
> Please define "compact" in terms of the number of degrees
> of phase shift measured using a traveling wave.

Phase shift in what Cecil? This is how people get in trouble, make misstatements, and wind up blaming others for what they say. Here we are again, trying to work traveling and standing waves into a system too small to have anything stand when another significantly better analysis method would easily explain it all.

You keep trying to define the "inductor" in terms of degrees related to standing waves like standing waves change the properties of the component. I can't remember the last time I called to order an inductor and they vendor asked me "what phase shift in degrees of standing wave 100uH inductor do you want?".

> > It's very simple to measure current and voltage and the phase
> > relationships in a two terminal device and prove you are wrong.
>
> I've got many technical references that disagree. If you can do
> that, why haven't you done that?

I have done it and told you how, you ignore it. Roy has done it and told you how, you ignore it. I'm sure many thousands of people here and everywhere else understand in a reactive system voltage and current are not in phase. I'm equally sure many thousands of people, including lurkers here, understand a small inductor operated well below self-resonance has equal phase current entering one lead and leaving the other.

The only way to get confused on that is if someone doesn't understand
behavior of the basic component, gets in over his head and confuses
himself trying to use a tool that doesn't work, and then lashes out at
others and refuses to listen.

> > The current flowing into one end and out of the other end of a small
> > lumped inductor operated far below self-resonance is essentially equal
> > in both phase and amplitude.
>
> Please define "small" as the number of degrees of phase shift
> measured using a traveling wave.

There you go again! Back to traveling and standing waves.

> > You say it isn't, I say it is, and I can
> > prove it beyond any doubt to any open minded person.
>
> Here, you are just out and out lying since I never said that.
> Want to bet $1000 that you can prove I ever said that? I didn't
> think so. What is with this compulsion you have to lie about
> what I have said? Can't you win a technical argument without
> lying?

There you go again, back to the lowest form of debate. If you can't
understand something or get trapped, just call the other guy a liar.

You very clearly said current in each terminal of the inductor has a
different phase shift several times in your posts.

> > I say I can easily build a loading coil that acts the same way. I can
> > replace 40 or 60 degrees of electrical height with an inductor that has
> > virtually no phase shift in current between the two terminals, and
> > virtually the same current level. I can prove that also.
>
> I seriously doubt that. Please measure the phase shift using a
> traveling wave through any coil that accomplishes that function.
> I suspect you are being fooled by the current loop located inside
> the coil and the fact that you have been ignorantly been measuring
> the net standing wave current which is essentially irrelevant.

I can't understand what you are saying or what your point is, other
than you think I am being fooled by standing waves, I am ignorant, and
anything I measure is irrelevant.

Maybe someone else can help me with your last statement.

> > I'm just not sure I can prove anything to someone who thinks a current
> > transformer measures current that doesn't flow!
>
> I explained it to you, Tom, in another posting. If you don't
> understand it, you need technical help. At a fixed point on a wire
> (where no net current or net charge is flowing) that is experiencing
> a constant exchange of H-field energy with E-field energy every
> cycle, a toroidal pickup coil will certainly report the results of

> that orthogonal energy exchange between the fields even though there
> is no lateral flow of net current or net charge. That's why a
> standing-wave dipole radiates broadside and a traveling-wave
> dipole is an end-fire.

Maybe someone else on this group can explain or understand what you are trying to say.

Anyone help me here? What is Cecil saying in that last paragraph? What does the pattern of a radiating structure in the far-field have to do with current in a circuit with a reactor?

73 Tom

2377. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 10:23:16 UTC
From: w8ji@akorn.net
Message-ID: <1141986196.902379.179470@e56g2000cwe.googlegroups.com>
Source record: 63438

jawod wrote:
> I know this has been addressed on the group before but I remain confused.

> My own gut says safety first, lower risk of RF issues after-the-fact by
> ? what ?
>
> I remember suggestions of coiling the ground wire in an RF choke,
> multiple ground lines of various lenghts to mess with harmonics.
> Ferrite beads? Chicken blood and a black cat?

John,

You have been misled and confused by bad information.

Richard Clark has given you good advice.

The only antenna that requires an RF ground is an antenna with a single conductor feedline worked against ground, or an antenna that is poorly designed or constructed.

The only reasons to have a hamshack ground, unless you are trying to band-aid an antenna that is improperly constructed or feed a longwire, are electrical safety and lightning.

Electrical safety can be taken care of by using a three wire outlet with grounding to the sagfety ground, and by following national codes. National codes require your station ground be bonded to the power mains entrance ground. We are not suposed to have two isolated grounds according to NEC, and it is a bad idea to have isolated grounds for lightning, safety, and RFI reasons.

I'm afraid all the talk about ground loops and such have confused you.

Try reading this:

http://www.w8ji.com/ground_systems.htm

73 Tom

2378. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 11:36:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <LwdQf.24738$rL5.20744@newssvr27.news.prodigy.net>
Source record: 63439

Wes Stewart wrote:
> Cecil Moore <mycall@arrl.net> wrote:
>>So why are you offering a free VV to someone they both hate? :-)
>
> I don't hate you. While I shook your hand at Flagstaff once, I don't
> know you well enough personally to get all worked about you one way or
> another. This is Usenet, not the real world. No sense taking it too
> seriously.

I wasn't serious, Wes. That's why the smiley face.
I apologize if my humor irritates anyone.
--
73, Cecil http://www.qsl.net/w5dxp

2379. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 11:51:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <rLdQf.24871$rL5.2390@newssvr27.news.prodigy.net>
Source record: 63440

Wes Stewart wrote:
> The VVM probes are comprised of a quad diode sampling bridge followed
> by an FET amplifier. They are nominally coaxial, although without the
> BNC adapters, they have an exposed pin (very delicate) and at lower
> frequencies they can be used much as a high impedance scope probe is
> used.

Thanks, Wes. When you say "lower frequencies", does that include
4 MHz?

> The instrument uses a phase-locked oscillator to drive the samplers
> with the "A" probe being the reference. One meter can be switched to
> display the amplitude of either channel and the second meter reads the
> phase difference between them.

I was planning to use toroidal pickups and a Lissajous figure
for the phase measurement. Did you know "Lissajous figure"
is described in my 1957 ARRL Handbook but not in my 2000
ARRL Handbook?

My main concern is how to ensure there are no reflections
present during the measurement. I need to put the 75m
bugcatcher coil in an RF loop where current is flowing
in only one direction. That's easy to draw on paper but
I'm concerned about it. How would you set it up?
--
73, Cecil http://www.qsl.net/w5dxp

2380. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 12:16:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <o6eQf.25076$rL5.14803@newssvr27.news.prodigy.net>
Source record: 63441

Wes Stewart wrote:

> Cecil Moore <mycall@arrl.net> wrote:
> "Your graphs show standing wave current which doesn't flow...blah
> blah"
>
> When I show otherwise, snip, gone without reply.

Sorry, I completely missed it. I'll go back and try
to find it.

> Sorry, "A bunch of IEEE PhD's" impresses me less than a handful of the
> guys posting here.

Have you looked at the articles on the web pages I posted?
Here's a funny quote, not previous quoted from:

http://www.ttr.com/corum/index.htm

"What frequency did you get in step 5? ... Is the difference
within engineering accuracy ... less than 5%? If the answer
is yes, then you may confidently use lumped-element modeling.
However, if the answer is no, then, from the halls of Valhalla,
old Wotan, himself, is thundering out over the battlements,
'#*@&%!! ... Thor, you dumdum! You CAN'T use lumped circuit
modeling!' ... [The coil has standing waves and is behaving
as a distributed resonator.]"

In case you missed it, here's what Walter Maxwell had to say
about the subject:

>> "If an inductance is in series with a line that has
>> reflections, the current will NOT be the same at both
>> ends of the inductor."
>>
>> "Consequently, circuit analysis will not work when both
>> forward and reflected currents are present in a lumped
>> circuit."
--
73, Cecil http://www.qsl.net/w5dxp

2381. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 12:35:54 UTC
From: w8ji@akorn.net
Message-ID: <1141994153.891695.287240@j33g2000cwa.googlegroups.com>
Source record: 63442

Cecil Moore wrote:

> In case you missed it, here's what Walter Maxwell had to say
> about the subject:
>
> >> "If an inductance is in series with a line that has
> >> reflections, the current will NOT be the same at both
> >> ends of the inductor."
> >>
> >> "Consequently, circuit analysis will not work when both
> >> forward and reflected currents are present in a lumped
> >> circuit."

Cecil, I really think you should let Walt speak for himself. You have a history of distorting facts and taking statements out of context, and may be discrediting Walt. Walt is too nice a person for me to stand by and let that happen.

If anyone really thinks that as a stand-alone statement, it is not correct. I suspect he didn't get the full story or wasn't following a discussion closely, or you have snipped something out of context. It's very easy to take small areas out of context and make it seem like someone is saying something they are not.

Any circuit analysis will work so long as the load impedances used in the analysis are the same as the load impedances presented at that point by an antenna.

The behavior of any small two-terminal component REQUIRES currents to be essentially equal. It's only when the component has a third significant path to the outside world that currents can be unequal.

If I have a small capacitor, current flowing in one lead is equal to current flowing out the other and the phase of each current is exactly equal. Same for an inductor.

That's not a guess, that's a rule of how things always behave.

I'm wondering if the real problem is some people spend too much time with transmission lines and antenna and not enough time with circuit components, and become rusty?

In any event, you do enough damage to people's reputations Cecil. Please leave Walt alone. He will speak for himself if he likes.

73 Tom

2382. Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 12:55:55 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-547450.06555410032006@newsclstr02.news.prodigy.com>
Source record: 63443

I have an old (but very good) W9INN 40/80 dipole. The only problem is it is cut for the upper phone band (centered at ~7.200) for 40 meters and I now do most operating in the lower portion of the band and would like to move the center to about 7.100 MHz. The 40 meter portion of the antenna is all soldered so I cannot just unwrap and extend it bit.

Any suggestions on the best way to add a extension and how much to add?

I have been thinking about cutting it and soldering in an X?-inch splice. Does the extension wire have to really match?

Dick AA5VU

2383. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 13:35:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <mgfQf.46808$H71.34128@newssvr13.news.prodigy.com>
Source record: 63444

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>Please explain how a net current with a fixed constant
>>non-rotating phase can possibly flow. Please explain
>>how a wire with 1 amp flowing in one direction and 1 amp
>>flowing in the other direction supports a net charge flow.
>
> Once again this indicates you are not familiar or comfortable with
> basics, and have gotten ahead of yourself by going off somehwre in a
> land of reflected waves. Now you are confused, and can't make sense of
> basics.

As readers can observe for themselves, you avoided answering
the question and you instead turned it into personal insults.

> The generator sees a reactive load. When the generator sees a reactive
> load, current and voltage are no longer in step. This is true all
> through the system from source to load.

I didn't ask or say anything about voltage. The fact that you
refuse to answer my technical questions speaks volumes.

>>Please define "compact" in terms of the number of degrees
>>of phase shift measured using a traveling wave.
>
> Phase shift in what Cecil?

The measured phase shift is in a traveling wave through a 75m
bugcatcher coil. How long does it take the traveling wave current
to flow from one end of the coil to the other? Your lumped-circuit
model presupposes instantaneous current flow for traveling waves.
Let's measure the current delay in a traveling wave to see
if your model is correct. If it is not correct, it is useless.

You cannot even begin to understand the problem if you don't
know that basic phase shift. I'm willing to bet that my 75m
bugcatcher coil has at least a 40 nanosecond delay on 4 MHz
which is a 60 degree current phase shift.

If that measured delay is in the ballpark of 40 nanoseconds
or more, it proves that your lumped-circuit model has failed
and your invalid proof is presupposed in the invalid model.

You cannot use a model that presupposes instantaneous current
flow to prove that the current flow is instantaneous. You cannot
use a model that presupposes constant current magnitude to prove

that the current has constant magnitude.

> You keep trying to define the "inductor" in terms of degrees related to
> standing waves ...

Not true, Tom, and just shows how confused you are about
what I have said. For the Nth time: The phase of the standing
wave current doesn't change up and down the entire length
of a 1/2WL thin dipole. Why would anyone expect it to change
at the ends of a loading coil? As far as I am concerned we
can drop any discussion of standing wave current phase. It is
meaningless. The phase that Roy measured was standing wave
phase. It was already known and is completely irrelevant. I
asked Roy to measure the traveling wave phase shift. He didn't.

> I have done it and told you how, you ignore it. Roy has done it and
> told you how, you ignore it.

You guys are measuring standing wave current that doesn't
flow and doesn't change phase. Your measurements are
completely meaningless and your flawed model has you
hoodwinked.

> The only way to get confused on that is if someone doesn't understand
> behavior of the basic component, gets in over his head and confuses
> himself trying to use a tool that doesn't work, and then lashes out at
> others and refuses to listen.

That's an exact description of you and your lumped circuit
analysis in a standing wave environment. Do you disagree with
Walter Maxwell?

> Walt wrote:
>> "If an inductance is in series with a line that has reflections,
>> the current will NOT be the same at both ends of the inductor."
>>
>> "Consequently, circuit analysis will not work when both forward
>> and reflected currents are present in a lumped circuit."

The component is not the problem, Tom. The problem seems to be
your feigning of total ignorance of the laws of reflection
physics in order to avoid discussing the real problem.

> There you go again! Back to traveling and standing waves.

Yes, you are never going to understand what I am saying about
standing-wave antennas until you discuss traveling and standing
waves on the standing-wave antenna. Your lumped-circuit model
is known to fail in the presence of standing waves.

> There you go again, back to the lowest form of debate. If you can't
> understand something or get trapped, just call the other guy a liar.

No, it's a lot simpler than that. When you lie about something
I said, I call you a liar.

> You very clearly said current in each terminal of the inductor has a
> different phase shift several times in your posts.

One more time. The standing wave current does NOT change phase
at the ends of the coil. The standing wave current essentially
does not change phase unless a dipole is longer than 1/2WL.
The phase of the standing wave current is totally irrelevant.

The forward traveling-wave current experiences a delay through
the coil. The reflected traveling-wave current experiences a
delay through the coil. This delay can be measured on the bench.
If the delay is not negligible, your lumped-circuit model is
useless because it presupposes a delay of zero.

> I can't understand what you are saying or what your point is, ...

Please don't insult my intelligence or yours. Every one of us
performed those experiments on the bench in college. Exactly
what is it about bench measuring the RF current delay through
a coil that you don't understand?

> Maybe someone else can help me with your last statement.

Do you even know what a standing wave current loop is?

> Maybe someone else on this group can explain or understand what you are
> trying to say.

You must have missed EE203. :-) What is it about a continuous
exchange of energy between the E-field and H-field at a fixed
point on an antenna wire that you don't understand? That's
just a characteristic of standing waves. Roy has used the
same argument in the past to try to prove that reflected
energy doesn't flow. But's it's the standing wave energy
that doesn't flow.
--
73, Cecil http://www.qsl.net/w5dxp

2384. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 14:08:48 UTC
From: w8ji@akorn.net
Message-ID: <1141999728.847290.48890@i40g2000cwc.googlegroups.com>
Source record: 63445

Cecil Moore wrote:

> > The generator sees a reactive load. When the generator sees a reactive
> > load, current and voltage are no longer in step. This is true all
> > through the system from source to load.
>
> I didn't ask or say anything about voltage. The fact that you
> refuse to answer my technical questions speaks volumes.

The fact you can't understand simple direct answers does the same. You asked how what I measured could happen, I answered. You either are choosing to ignore the answer becuase you don't like it, or you don't understand it.

> >>Please define "compact" in terms of the number of degrees
> >>of phase shift measured using a traveling wave.
> >
> > Phase shift in what Cecil?
>
> The measured phase shift is in a traveling wave through a 75m
> bugcatcher coil. How long does it take the traveling wave current
> to flow from one end of the coil to the other? Your lumped-circuit
> model presupposes instantaneous current flow for traveling waves.
> Let's measure the current delay in a traveling wave to see
> if your model is correct. If it is not correct, it is useless.

When Roy measured current (and I did the same) using inductive coupling in a current trasformer, a method that requires a time-varying current to excite the secondary, you dismissed Roy's measurements with some odd response about him measuring current that doesn't flow.

I already measured the phase of current, and it is nearly zero degrees. It seems obvious to me that when someone gives you and answer you don't like, you either personally attack that persona and call them a liar or you make up some lame excuse like "you measured current that doesn't flow".

I don't know what others think, but it is starting to look to me like you either don't understand the basics of measurements or you are just unwilling to learn.

> You cannot even begin to understand the problem if you don't
> know that basic phase shift. I'm willing to bet that my 75m
> bugcatcher coil has at least a 40 nanosecond delay on 4 MHz
> which is a 60 degree current phase shift.

I can measure that. My network analyzer measures time delays. The problem I see is if I take time from my busy schedule and measure it, you will either call me a liar or say I measured current that doesn't flow.

Before measuring anything specific I'm going to warn you that I've measured group delays many times before, and the group delay in an inductor is significantly less than the group delay in a transmission line of the same conductor length. I know that from past experience.

But if you promise to control yourself and not dismiss a measurement with personal attacks or insults, and promise to not do an about-face like you did with Roy and say "you really didn't measure current that moves with your thing that only measures changing current", I will do that.

I really wish some of your ideas were correct. If they were correct, I would not have thousands of feet of coaxial cables coiled under my bench. I would not be forcing customers to cut long delay lines when their equipment could just use a simple wound up piece of enameled wire.

> If that measured delay is in the ballpark of 40 nanoseconds
> or more, it proves that your lumped-circuit model has failed
> and your invalid proof is presupposed in the invalid model.

The only potential problem is your reaction to measurements.

> > You keep trying to define the "inductor" in terms of degrees related to
> > standing waves ...
>
> Not true, Tom, and just shows how confused you are about
> what I have said. For the Nth time: The phase of the standing
> wave current doesn't change up and down the entire length
> of a 1/2WL thin dipole. Why would anyone expect it to change
> at the ends of a loading coil? As far as I am concerned we
> can drop any discussion of standing wave current phase. It is
> meaningless. The phase that Roy measured was standing wave
> phase. It was already known and is completely irrelevant. I
> asked Roy to measure the traveling wave phase shift. He didn't.

Does ANYONE on this newsgroup understand Cecil? I need help here.

> > I have done it and told you how, you ignore it. Roy has done it and
> > told you how, you ignore it.
>
> You guys are measuring standing wave current that doesn't
> flow and doesn't change phase. Your measurements are
> completely meaningless and your flawed model has you
> hoodwinked.

What a silly statement. We are measuring a time-varying current that doesn't flow or change!

> > The only way to get confused on that is if someone doesn't understand
> > behavior of the basic component, gets in over his head and confuses
> > himself trying to use a tool that doesn't work, and then lashes out at
> > others and refuses to listen.
>
> That's an exact description of you and your lumped circuit
> analysis in a standing wave environment. Do you disagree with
> Walter Maxwell?
>
> > Walt wrote:
> >> "If an inductance is in series with a line that has reflections,
> >> the current will NOT be the same at both ends of the inductor."
> >>
> >> "Consequently, circuit analysis will not work when both forward
> >> and reflected currents are present in a lumped circuit."

Yes, if he wrote what you quoted and you didn't lift something out of
context I totally disagree with him.

> The component is not the problem, Tom. The problem seems to be
> your feigning of total ignorance of the laws of reflection
> physics in order to avoid discussing the real problem.

I don't think most qualified experienced people would think I am the
ignorant one.

> > There you go again! Back to traveling and standing waves.
>
> Yes, you are never going to understand what I am saying about
> standing-wave antennas until you discuss traveling and standing
> waves on the standing-wave antenna. Your lumped-circuit model
> is known to fail in the presence of standing waves.

Nonsense.

> > There you go again, back to the lowest form of debate. If you
can't
> > understand something or get trapped, just call the other guy a liar.
>
> No, it's a lot simpler than that. When you lie about something
> I said, I call you a liar.

There you go again. Do you have any idea how statements like that make
you look to others?

> > You very clearly said current in each terminal of the inductor has a
> > different phase shift several times in your posts.
>
> One more time. The standing wave current does NOT change phase
> at the ends of the coil. The standing wave current essentially
> does not change phase unless a dipole is longer than 1/2WL.
> The phase of the standing wave current is totally irrelevant.

> The forward traveling-wave current experiences a delay through
> the coil. The reflected traveling-wave current experiences a
> delay through the coil. This delay can be measured on the bench.
> If the delay is not negligible, your lumped-circuit model is
> useless because it presupposes a delay of zero.
>
> > I can't understand what you are saying or what your point is, ...
>
> Please don't insult my intelligence or yours. Every one of us
> performed those experiments on the bench in college. Exactly
> what is it about bench measuring the RF current delay through
> a coil that you don't understand?

I understand it fine. I don't think the problem is on my end. If it is,
someone besides you will chime in and tell me. I'm afraid I don't trust
your opinions very much.

> > Maybe someone else can help me with your last statement.
>
> Do you even know what a standing wave current loop is?

Do you?

> > Maybe someone else on this group can explain or understand what you are
> > trying to say.
>
> You must have missed EE203. :-) What is it about a continuous
> exchange of energy between the E-field and H-field at a fixed
> point on an antenna wire that you don't understand? That's
> just a characteristic of standing waves. Roy has used the
> same argument in the past to try to prove that reflected
> energy doesn't flow. But's it's the standing wave energy
> that doesn't flow.

Are you confusing energy and current? Or are you just joking again?

73 Tom

2385. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 14:16:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <5TfQf.44145$F_3.10152@newssvr29.news.prodigy.net>
Source record: 63446

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>In case you missed it, here's what Walter Maxwell had to say
>>about the subject:
>>
>> >> "If an inductance is in series with a line that has
>> >> reflections, the current will NOT be the same at both
>> >> ends of the inductor."
>> >>
>> >> "Consequently, circuit analysis will not work when both
>> >> forward and reflected currents are present in a lumped
>> >> circuit."
>
> Cecil, I really think you should let Walt speak for himself.

Sorry, I don't care what you think. You and I (and Walt)
know exactly who distorted the facts.

> If anyone really thinks that as a stand-alone statement, it is not
> correct. I suspect he didn't get the full story or wasn't following a
> discussion closely, or you have snipped something out of context. It's
> very easy to take small areas out of context and make it seem like
> someone is saying something they are not.

Those are Walt's exact words, not mine. If you don't believe me,
send him an email and ask him.

> The behavior of any small two-terminal component REQUIRES currents to
> be essentially equal. It's only when the component has a third
> significant path to the outside world that currents can be unequal.

Wrong! Wrong! Wrong! Your lumped-circuit model presupposes that
the currents are equal so you are begging the question. YOU
CANNOT USE YOUR MODEL TO PROVE ITS OWN PRESUPPOSITIONS. I see
you haven't yet read what Dr. Corum had to say on that subject.

http://www.ttr.com/corum/index.htm

> If I have a small capacitor, current flowing in one lead is equal to
> current flowing out the other and the phase of each current is exactly
> equal. Same for an inductor.

Sorry, that's just not true for inductors. In the real world,
there is a traveling wave current delay through the coil that
can easily be measured on the bench. That delay converts
directly to a phase delay. You are simply mistaken, hoodwinked

by your lumped-circuit model, which presupposes the proof of
what you say above. You are once again, begging the question
and assuming the proof without having proved anything.

> That's not a guess, that's a rule of how things always behave.

BS, Tom. That's a rule from a model known to fail in the
presence of standing waves. Models existing in your mind
don't dictate reality. It is supposed to be just the opposite.

> I'm wondering if the real problem is some people spend too much time
> with transmission lines and antenna and not enough time with circuit
> components, and become rusty?

The real problem is that you are looking for your keys under
the streetlight instead of in the dark where you lost them.

The real problem is that you are doing the same thing as the
naive ham who tries to measure feedpoint impedance with an
ohm-meter.

The real problem is that you are using a tool known to fail
under the conditions in which you are trying to use it.

THE LUMPED-CIRCUIT MODEL FAILS IN THE PRESENCE OF STANDING WAVES!
I know that. Walt knows that. Dr. Corum knows that. A number
of lurkers on this newsgroup know that. Nikola Tesla obviously
knew that in his 1897 patent application.

> In any event, you do enough damage to people's reputations Cecil.
> Please leave Walt alone. He will speak for himself if he likes.

Please mind your own business. I have Walt's permission to
quote his stuff. If he ever asks me to stop quoting him, I will.
One wonders if your attitude would be different if Walt agreed
with you? :-)
--
73, Cecil http://www.qsl.net/w5dxp

2386. Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 14:38:29 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <6kf8e3-hhc.ln1@p400bob.personal.cox.net>
Source record: 63447

Hi Y'all! (said with a strange Australian accent!)

Am doing so NEC work for my QTH and need to get an idea of the ground conditions here.

I started with the "Rich soil" of Dallas>Lincoln but was advised that it was more clay and likely to be typical of that in central VA.

Any information helpful.

Cheers Bob W5/VK2YQA

The 4NEC2 manual extract is attached inline below;

Pastoral, low hills, rich soil, typical from
Dallas, TX, to Lincoln, NE 0.0303 20 Very Good

Pastoral, low hills, rich soil, typical of OH
and IL 0.01 14 Good

Flat country, marshy, densely wooded, typical
of LA near the Mississippi River 0.0075 12

Pastoral, medium hills, and forestation, typical
of MD, PA, NY (exclusive of mountains and
coastline) 0.006 13

Pastoral, medium hills, and forestation, heavy
clay soils, typical of central VA 0.005 13 Average

Rocky soil, steep hills, typically mountainous 0.002 12-14 Poor

Sandy, dry, flat, coastal 0.002 10

2387. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 15:05:51 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <i94312phkk51dtpdkiva0k7fes1i73s3qu@4ax.com>
Source record: 63448

On Fri, 10 Mar 2006 11:51:51 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Wes Stewart wrote:
>> The VVM probes are comprised of a quad diode sampling bridge followed
>> by an FET amplifier. They are nominally coaxial, although without the
>> BNC adapters, they have an exposed pin (very delicate) and at lower
>> frequencies they can be used much as a high impedance scope probe is
>> used.
>
>Thanks, Wes. When you say "lower frequencies", does that include
>4 MHz?

When I wrote last, I was nursing a big toe that had just suffered the trauma of having a 4' x 8' sheet of 3/4" plywood dropped on it edge on. So I didn't want to hobble into the shack to search for the manual.

Now I have it before me. The nominal impedance of the probes is 100 Kohm shunted by 2.5 pF. If this doesn't upset your measurement then you're good to go.

I think that when I was remembering probing circuits with the bare probes I was thinking of the HP Vector Impedance Meter more than the VVM. It was a lower frequency instrument designed for that purpose.

>
>> The instrument uses a phase-locked oscillator to drive the samplers
>> with the "A" probe being the reference. One meter can be switched to
>> display the amplitude of either channel and the second meter reads the
>> phase difference between them.
>
>I was planning to use toroidal pickups and a Lissajous figure
>for the phase measurement. Did you know "Lissajous figure"
>is described in my 1957 ARRL Handbook but not in my 2000
>ARRL Handbook?

Well, they gotta leave something out so they can included the latest PIC controlled-automatic-rig-to-computer-interface and coffeemaker doodad.

>
>My main concern is how to ensure there are no reflections
>present during the measurement. I need to put the 75m
>bugcatcher coil in an RF loop where current is flowing
>in only one direction. That's easy to draw on paper but
>I'm concerned about it. How would you set it up?

Can't help you.

2388. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 15:15:51 UTC
From: AC7PN <brunius@rockisland.com>
Message-ID: <1142003751.771783.210060@i39g2000cwa.googlegroups.com>
Source record: 63449

FACTOID:

"A small granule of truth." A factoid is to insight, as a small hard
turd is to a bowel movement.

Bob Brunius, AC7PN

Dan Richardson wrote:
> On Wed, 08 Mar 2006 13:58:19 -0800, Richard Clark <kb7qhc@comcast.net>
> wrote:
>
> >On Wed, 8 Mar 2006 21:55:42 +0000 (UTC), "Reg Edwards"
> ><g4fgq.regp@ZZZbtinternet.com> wrote:
> >
> >>If you don't know what its level is then you don't know what you are
> >>waffling about.
> >
> >Hi Reggie,
> >
> >Seeing you lack any quantifiables, are you offering belgian waffles?
> >
> >73's
> >Richard Clark, KB7QHC
>
> Richard,
>
> Just anouther one of Reg's factoids (e pluribus unum).
>
>
> Danny

2389. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 15:16:11 UTC
From: w8ji@akorn.net
Message-ID: <1142003771.861185.56110@e56g2000cwe.googlegroups.com>
Source record: 63450

Wes Stewart wrote:

>Cecil wrote:
> >My main concern is how to ensure there are no reflections
> >present during the measurement. I need to put the 75m
> >bugcatcher coil in an RF loop where current is flowing
> >in only one direction. That's easy to draw on paper but
> >I'm concerned about it. How would you set it up?

> Can't help you.

What Cecil needs to do is bias the coil with a DC bias current that
safely exceeds the peak RF current.

Then he would have RF current flowing in only one direction.

73 Tom

2390. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 15:41:30 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <j17312dlulking3cem4engv6i0nk04tf4m@4ax.com>
Source record: 63451

I am not familiar with your 40/80 dipole, I assume it is a trap
arrangement.

The 1/2 wave difference on 40M of 7.2 and 7.1mhz is only about a foot.
The change in a DIPOLE at 40M would be difficult to measure.

I would not change it.
Do you have an indication that it needs adjustment?

On Fri, 10 Mar 2006 12:55:55 GMT, "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
wrote:

>I have an old (but very good) W9INN 40/80 dipole. The only problem is
>it is cut for the upper phone band (centered at ~7.200) for 40 meters
>and I now do most operating in the lower portion of the band and would
>like to move the center to about 7.100 MHz. The 40 meter portion of the
>antenna is all soldered so I cannot just unwrap and extend it bit.
>
>Any suggestions on the best way to add a extension and how much to add?
>
>I have been thinking about cutting it and soldering in an X?-inch
>splice. Does the extension wire have to really match?
>
>Dick AA5VU
John Ferrell W8CCW

2391. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 15:58:59 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <j98312tnjst6dra9ujdsivf95uuqkb7f81@4ax.com>
Source record: 63452

On Fri, 10 Mar 2006 12:55:55 GMT, "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
wrote:

>I have an old (but very good) W9INN 40/80 dipole. The only problem is
>it is cut for the upper phone band (centered at ~7.200) for 40 meters
>and I now do most operating in the lower portion of the band and would
>like to move the center to about 7.100 MHz. The 40 meter portion of the
>antenna is all soldered so I cannot just unwrap and extend it bit.
>
>Any suggestions on the best way to add a extension and how much to add?
>
>I have been thinking about cutting it and soldering in an X?-inch
>splice. Does the extension wire have to really match?
>
>Dick AA5VU

I've added extensions via an alligator clip with a piece of wire
attached, and then shorten that wire until you get a good match.

bob
k5qwg

2392. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 16:08:15 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <PvhQf.983$CI6.267@trnddc07>
Source record: 63453

"Cecil Moore" <mycall@arrl.net> wrote in message
news:rLdQf.24871$rL5.2390@newssvr27.news.prodigy.net...
> Wes Stewart wrote:
>> The VVM probes are comprised of a quad diode sampling bridge followed
>> by an FET amplifier. They are nominally coaxial, although without the
>> BNC adapters, they have an exposed pin (very delicate) and at lower
>> frequencies they can be used much as a high impedance scope probe is
>> used.
>
> Thanks, Wes. When you say "lower frequencies", does that include
> 4 MHz?
>
>> The instrument uses a phase-locked oscillator to drive the samplers
>> with the "A" probe being the reference. One meter can be switched to
>> display the amplitude of either channel and the second meter reads the
>> phase difference between them.
>
> I was planning to use toroidal pickups and a Lissajous figure
> for the phase measurement. Did you know "Lissajous figure"
> is described in my 1957 ARRL Handbook but not in my 2000
> ARRL Handbook?
>
> My main concern is how to ensure there are no reflections
> present during the measurement. I need to put the 75m
> bugcatcher coil in an RF loop where current is flowing
> in only one direction. That's easy to draw on paper but
> I'm concerned about it. How would you set it up?
> --
> 73, Cecil http://www.qsl.net/w5dxp

Hi Cecil

I have the Technical Manual for the HP 8405 (36 MB) and could send it to
you with "Usendit" or "Skype".

Jerry

2393. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 16:08:42 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <ewhQf.16113$Cp4.11900@edtnps90>
Source record: 63454

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:6kf8e3-hhc.ln1@p400bob.personal.cox.net...
> Hi Y'all! (said with a strange Australian accent!)
>
> Am doing so NEC work for my QTH and need to get an idea of the ground
> conditions here.
>
> I started with the "Rich soil" of Dallas>Lincoln but was advised that it
> was more clay and likely to be typical of that in central VA.
>
> Any information helpful.
>
> Cheers Bob W5/VK2YQA
>
>
>
> The 4NEC2 manual extract is attached inline below;
>
>
> Pastoral, low hills, rich soil, typical from
> Dallas, TX, to Lincoln, NE 0.0303 20 Very Good
>
> Pastoral, low hills, rich soil, typical of OH
> and IL 0.01 14 Good
>
> Flat country, marshy, densely wooded, typical
> of LA near the Mississippi River 0.0075 12
>
> Pastoral, medium hills, and forestation, typical
> of MD, PA, NY (exclusive of mountains and
> coastline) 0.006 13
>
> Pastoral, medium hills, and forestation, heavy
> clay soils, typical of central VA 0.005 13 Average
>
> Rocky soil, steep hills, typically mountainous 0.002 12-14 Poor
>
> Sandy, dry, flat, coastal 0.002 10

Bob, According to my 1977 edition of "Reference Data for Radio Engineers"
Soil conductivity along the south bank of the red river is 30mS/m (Most of
the OK side is shown as 15 mS/m). Since the map is not very detailed, and
without going to the extent of graphic overlays, it seems that Dallas is in
a region of lower conductivity at 15 mS/m. If you are interested I can scan

the map for you.

I went to the trouble of measuring my soil conductivity; using the "4 rod method", with 60 Hz AC, as per the ARRL handbook (Measured 52 mS/m in Calgary). I believe I have JPEGs of the relevant pages someplace. Also some guys I was working with, a couple of years ago, devised a method of measuring the complex permittivity with a capacitor structure. There were some problems with the method, which they eventually corrected. The information was required to analyze short range VHF transmission underground.

73.

Frank, VE6CB

2394. Re: Military ships fan antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 16:46:42 UTC
From: NA <n6pjqnot@nospamarrl.net>
Message-ID: <S3iQf.22575$992.6158@tornado.socal.rr.com>
Source record: 63455

Thanks for your input.

Jim N6PJQ

"NA" <n6pjqnot@nospamarrl.net> wrote in message
news:_1GPf.17539$992.17494@tornado.socal.rr.com...
> Can anyone tell me about "fan antennas" like those used on the large navy
> ships.
>
> Thanks Jim N6PJQ
>
>
>

2395. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 16:48:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <e5iQf.27379$rL5.10507@newssvr27.news.prodigy.net>
Source record: 63456

<w8ji@akorn.net> wrote:
> The fact you can't understand simple direct answers does the same.

I love simple answers, Tom. What I don't like are simple-minded
answers based on an invalid model.

> When Roy measured current (and I did the same) using inductive coupling
> in a current trasformer, a method that requires a time-varying current
> to excite the secondary, you dismissed Roy's measurements with some odd
> response about him measuring current that doesn't flow.

The inductive coupling does NOT require a time-varying
current. All it requires is a time-varying H-field. That
standing wave H-field is indeed varying but it's not because
current is moving laterally up or down the wire. That H-field is
fixed at a point on the line exchanging energy with the E-field
which is also fixed at the same point. If the H-field is not
moving laterally up or down the wire (it isn't) then the current
is NOT flowing. You must have missed that day in your
fields and waves class.

Take a metal rod. Slip a string through a washer and tie it.
Loop the string onto the metal rod. Put a grommet on the
rod on each side of the string to keep it in one place in
the X dimension on the wire. Now, keeping the X dimension
fixed, swing the loop in the plane of the Y and Z dimensions
and look at it on edge. You are looking at a physical analogy
of the standing wave current at a point on a wire. Is the
string moving? Not in the X dimension which is constant
and fixed by the grommets.

At any point on a wire with standing waves, the E-field
and H-field are not moving laterally up and down the wire. They
are *stationary* at a point on the wire. All that is happening at
that point is the E-field and H-field are swapping energy at the
RF frequency. The current probe naturally picks up those
stationary oscillating fields. You and Roy still don't understand
what it was that was being measured.The current that you and
Roy measured was not flowing. It was just standing there.
That's why they call it a *standing* wave. The currents
that are required to be constant through the coil are the
traveling-wave currents.

A standing wave is not at all a wave in the classic definition
of EM waves. It is simply a superposition of two classic EM
waves flowing in opposite directions. Here's an optical example

of what is happening to you. The yellow light coming from your
TV is an interference pattern between red, blue, and green
light. You are measuring yellow light thinking that's a primary
color. It is not. But you could use your yellow light measurement
to estimate the strength of the primary colors.

The standing-wave current is an interference pattern caused
by superposition of forward and reflected current waves.
Like the yellow light you are seeing, it is not primary, and
like the yellow light, it is an artifact of interference..

In a wire in which one amp is flowing in one direction and one
amp is flowing in the opposite direction, there is no net flow
of current. Therefore, standing wave current has no net flow.
That is obvious from its constant, fixed phase angle which
doesn't change (much).

> I already measured the phase of current, and it is nearly zero degrees.

The measured phase of the net standing wave current is near
zero degrees whether a coil exists or not. All it means is that
the net standing wave current is standing still. Basing your
conclusions upon measurements of a current that is not even
flowing is foolish.

> I don't know what others think, but it is starting to look to me like
> you either don't understand the basics of measurements or you are just
> unwilling to learn.

You have been seduced by your model that is known to fail in the
presence of standing waves. Why you cling to such a false prophet
in the real world is beyond me.

> I can measure that. My network analyzer measures time delays. The
> problem I see is if I take time from my busy schedule and measure it,
> you will either call me a liar or say I measured current that doesn't
> flow.

If you measure a traveling wave current, you will be measuring a
current that is actually flowing. Your S12 phase shift measurement
showed a -60 to -70 degree phase shift in a 100uH coil at one
MHz. That measurement of yours has already proved that your
lumped-circuit model is invalid. Why didn't you just use the
zero degrees predicted by the lumped-circuit model instead
of measuring it? :-)

> Before measuring anything specific I'm going to warn you that I've
> measured group delays many times before, and the group delay in an
> inductor is significantly less than the group delay in a transmission
> line of the same conductor length. I know that from past experience.

I know that, Tom. The point is: If there is any appreciable delay
through the coil, that fact violates the presuppositions of the lumped-

circuit model. Therefore, a lumped-circuit model cannot be used
to explain the characteristics of that real-world coil and especially
not in a standing wave environment.

> But if you promise to control yourself and not dismiss a measurement
> with personal attacks or insults, and promise to not do an about-face
> like you did with Roy and say "you really didn't measure current that
> moves with your thing that only measures changing current", I will do
> that.

I appreciate that and I would also appreciate it if you didn't pencil
whip the results before reporting them. Please just be honest. I
assume we are both after the truth. And be sure to measure a
coil something of the size of a 75m bugcatcher coil. I think a
75m bugcatcher coil would show more of a delay than a
toroidal inductor of the same inductive reactance.

> I really wish some of your ideas were correct. If they were correct, I
> would not have thousands of feet of coaxial cables coiled under my
> bench. I would not be forcing customers to cut long delay lines when
> their equipment could just use a simple wound up piece of enameled
> wire.

Surely, you are familiar with helical transmision lines with a very,
very small velocity factor. And Intel does use simple coils as delay
lines in some of their PCB designs.

> Does ANYONE on this newsgroup understand Cecil? I need help here.

They are there, Tom. But they just don't want to tangle with a junk
yard dog. Most people don't have a thick enough skin to withstand
your onslaughts. I get a couple of emails a week from those guys.
One distinguished gentleman and well known ham said that you have
never lost an argument, even when you were wrong. I know exactly
what he means.

> What a silly statement. We are measuring a time-varying current that
> doesn't flow or change!

It's magnitude changes but it indeed doesn't flow or change phase.
It's magnitude changes because the E-field and H-field are continuously
exchanging energy at the frequency of operation. If you understood the
implications of a constant, fixed, unchanging phase, you would know
that.

> Yes, if he wrote what you quoted and you didn't lift something out of
> context I totally disagree with him.

So be it.

> > Your lumped-circuit model
> > is known to fail in the presence of standing waves.
>
> Nonsense.

YOUR LUMPED-CIRCUIT MODEL IS KNOWN TO FAIL
IN THE PRESENCE OF STANDING WAVES!

What is it about that statement that you don't understand? Your lumped-circuit model presupposes conditions that don't exist in a standing wave environment. Therefore, it is invalid and another more powerful model must be chosen.Because your chosen model is invalid, the validity of everything you say is questionable.

The lumped-circuit model is a subset of the distributed-network model. The distributed-network model is a subset of Maxwell's equations. If you don't understand the limitations of the model, you will choose to use it under the wrong circumstances. That's what you, Roy, and others have done.
--
73, Cecil, W5DXP

2396. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 17:04:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <WkiQf.27521$rL5.24768@newssvr27.news.prodigy.net>
Source record: 63457

<w8ji@akorn.net> wrote:
> What Cecil needs to do is bias the coil with a DC bias current that
> safely exceeds the peak RF current.
>
> Then he would have RF current flowing in only one direction.

I should have said: have the RF current wave flowing only
in the forward direction.Wes knew what I meant.
--
73, Cecil, W5DXP

2397. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 17:37:10 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <e9e312pj1l649ot1e7mlnb81if7058681p@4ax.com>
Source record: 63458

On Fri, 10 Mar 2006 17:04:54 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:
>the RF current wave
:-)

2398. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 17:39:31 UTC
From: w8ji@akorn.net
Message-ID: <1142012371.812551.124120@v46g2000cwv.googlegroups.com>
Source record: 63459

Quoted from an e-mail exchange I am having:

> However, I'd like you to reconsider your position concerning inductances in
> series with a line that has both forward and reverse currents flowing, as in
> short mobile antennas. As a result of two currents from the same source flowing
> in opposite directions, a standing wave is inevitable, hence different values of
> current at different points along the wire in the inductor.

That is incorrect for the conditions we are outlining, and it is misleading Cecil. It has him lost in a world of reflections. You have gone outside the limits of the model by assuming, incorrectly, the inductor has no or little flux linkage from end-to-end and has large stray capacitance to the outside world compared to load impedance. The conductor used to build a inductor does not have current slowly winding its way along that path.

There is no virtually no difference in phase delay in current at each end of a relatively compact inductor. It is very easy to measure that. It also have very little group delay compared to the group delay one would expect from a transmission line or antenna the same length. I know that because I have measured it hundreds of times.

> I have repeated a url below that Cecil posted on the rraa. The material in that
> url agrees with my position, and specifically states that circuit analysis is
> invalid when the model contains distributed currents, and admonishes that anyone
> who disbelieves this has forgotten the warning about the situation given in
> sophmore EE courses.

The Tesla coil, by definition of how it works, violates all boundaries of the examples myself and others are giving Cecil. It does not apply to the discussion at all.

The Tesla coil is intentionally of exceptionally long form factor. It has virtually an open circuit at the end, and is by operation self-resonant at the operating frequency. It has a very large amount of distributed capacitance compared to termination impedance, since the termination is an open. It is not operated at a fraction of self-resonance as people SHOULD know a good mobile loading coil is.

It has no bearing at all on the discussion, any more than it would if I started measuring the plate choke from an AL1200 amplifier at the self-resonant frequency with an open termination, or a loading coil for a 75 meter antenna at the self-resonant frequency.

Everyone (except Cecil) has been very careful to give the boundaries and describe the effects. The Tesla coil does not fit the boundaries described, and the secondary inductor in the Tesla coil behaves nothing

like an inductor operated well below self resonance.

> http://www.ttr.com/corum/index.htm

The very first paragraph of that reference should have been a red flag that it does not apply to this discussion. Here is what it says:

"Can one model the physical operation of a Tesla coil appropriately with only lumped-element circuits? If not, why not? It was pointed out long ago that, at its operating frequency, a Tesla coil is NOT a lumped-element induction coil. Forget the quest for "many turns of fine wire". In fact, a Tesla coil has more in common with a cavity resonator than it does with a conventional inductor."

The key words they use, and they even drew attention to the words by a type style change, "at its operating frequency, a Tesla coil is NOT a lumped-element induction coil". They were very clear about that, and go on to describe how it does behave like a normal induction coil.

Everyone in the conversation has been very careful to clearly establish the boundary conditions that the behavior we are talking about is significantly below self-resonance, an inductor of compact form factor, and an inductor of good design.

I can't understand why anyone would attempt to reference an article that, in the very opening, states the inductor is operating at self-resonance! I can't understand why anyone would reference an article that violates the boundaries of termination impedance outlined in the discussion, where it has been stated over and over again the inductor must be terminated in an impedance that is low compared to leakage impedances.

I can't imagine anyone using a lossy Tesla coil as an antenna or part of an antenna system. Please read the opening paragraphs of the article you reference.

73 Tom

2399. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 17:41:28 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dusdo8$hu3$2@engnntp2.cig.mot.com>
Source record: 63463

It's a shame Bill is gone.
Not to worry. It should work just fine as-is. Mine resonates on 7.1 and works just fine on the whole band.

However, if you insist...Nothing special about extending. Just about any wire will work. The most important things to use a mechanical technique suitable for the job and it won't hurt to use a wire of similar gauge. Insulation is irrelevant.

Use the dipole formula 468/f(Mhz) to figure out the difference. Run the formula for the freq it is cut for, then for the freq you want and subtract (and divide by 2) to get the amount you need to add to each end. (or just use 234/f for the amount to add on each end).

As a double check, with Excel I get 5.49295774647888 inches on each end...
Cut very carefully!

That's about 5 and 31.5492957746483 / 64ths inches. (:-)

73, Steve, K9DCI

"Dick, AA5VU" <aa5vuNOSPAM@arrl.net> wrote in message
news:aa5vuNOSPAM-547450.06555410032006@newsclstr02.news.prodigy.com...
> I have an old (but very good) W9INN 40/80 dipole. The only problem is
> it is cut for the upper phone band (centered at ~7.200) for 40 meters
> and I now do most operating in the lower portion of the band and would
> like to move the center to about 7.100 MHz. The 40 meter portion of the
> antenna is all soldered so I cannot just unwrap and extend it bit.
>
> Any suggestions on the best way to add a extension and how much to add?
>
> I have been thinking about cutting it and soldering in an X?-inch
> splice. Does the extension wire have to really match?
>
> Dick AA5VU

2400. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 18:03:51 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <hnf312poqgtge9etn2gm88uvqndgl04esu@4ax.com>
Source record: 63460

On Fri, 10 Mar 2006 17:04:54 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:

>
><w8ji@akorn.net> wrote:
>> What Cecil needs to do is bias the coil with a DC bias current that
>> safely exceeds the peak RF current.
>>
>> Then he would have RF current flowing in only one direction.
>
>I should have said: have the RF current wave flowing only
>in the forward direction.Wes knew what I meant.

I did?

2401. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 18:19:05 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HaudnUh9IMJTXIzZnZ2dnUVZ_sadnZ2d@adelphia.com>
Source record: 63461

Cecil Moore wrote:
> <w8ji@akorn.net> wrote:
>
>>What Cecil needs to do is bias the coil with a DC bias current that
>>safely exceeds the peak RF current.
>>
>>Then he would have RF current flowing in only one direction.
>
>
> I should have said: have the RF current wave flowing only
> in the forward direction.Wes knew what I meant.

I think a lot of the contention on this subject is based on little more than such multiple meanings for common term, "current".

When you talk about current flowing, you seem to be thinking of current waves traveling along a conductor. Others seem to be saying "current" and thinking of charge movement. I think that only the second is technically correct (current is the movement of charge, not the traveling wave or standing wave pattern in that movement), but I think I understand what you are picturing. We switch to the short hand concept of calling a pattern of current changes a current every time we make an AC current measurement and refer to it as a non zero value, as we do with amperes (RMS).

Standing waves involve no net wave travel in either direction, though anywhere except at the current nodes, charge is certainly moving back and forth along the conductor, during a cycle. Thus, there certainly are instantaneous currents in both directions (depending on location and instant) along any conductor sustaining a standing wave, everywhere, except at the current nodes. And everywhere, except at voltage nodes, half way between current nodes, charge is piling up (as electrons move toward every other current node) and spreading out as electrons moves away from the remaining current nodes) creating voltage changes.

Traveling waves have a very similar charge movement as that which takes place half way between the nodes and peaks of the standing wave pattern. But there are no nodes or peaks, so the current swings between the same 2 values, everywhere along the conductor. Charge arrives from one direction, instead of from both directions and leaves in the other direction, each half cycle. Every other half cycle, the directions of arrival and departure reverse, even though the wave always moves in one direction. I am talking about conduction in wire, not EM waves in space, here.

This current (movement of charge in either a standing wave or a traveling wave) creates H field and the changes in that H field can be monitored with a current transformer. But at any single point, current measured with a current transformer has no way of knowing if the current changes seen are the result of a standing wave or a traveling wave. In both cases, charge is seen to be moving in alternating directions. But if you slide the current transformer along the conductor, the current magnitude will vary if standing waves are responsible for the current, and remain, essentially constant, if traveling waves are its source.

I apologize for stating the painfully obvious, but when basic terminology is the cause of misunderstanding, it sometimes helps to back up a step in the direction of a more basic view to uncover the origin of the misunderstanding.

2402. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 18:22:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1ujQf.44208$F_3.30560@newssvr29.news.prodigy.net>
Source record: 63462

<w8ji@akorn.net> wrote :
> That is incorrect for the conditions we are outlining, and it is
> misleading Cecil. It has him lost in a world of reflections.

What is causing the misleading part is: THE LUMPED-CIRCUIT
MODEL FAILS IN THE PRESENCE OF STANDING WAVES!

> There is no virtually no difference in phase delay in current at each
> end of a relatively compact inductor.

Is a 75m bugcatcher coil a "relatively compact indictor"? If you say
yes, you are stuck with its measured delay. If you say no, then we
are not discussing the typical amateur radio mobile loading coil.

Of course, one turn on a toroid is going to exhibit the characteristics
you are presenting. But that is not a typical bugcatcher coil either.

> The Tesla coil, by definition of how it works, violates all boundaries
> of the examples myself and others are giving Cecil. It does not apply
> to the discussion at all.

False: A 75m bugcatcher coil used as a 1/4WL resonator on
9-10 MHz meets the minimum requirements for a Tesla coil.
It uses 1/6 wavelength of wire on 75m. I'll bet it would
certainly arc at a kilowatt.

The typical minimum Tesla system is a coil with a top hat sphere.
It looks a lot like your 160m mobile antenna. :-)

> It is not operated at a fraction of
> self-resonance as people SHOULD know a good mobile loading coil is.

A 75m bugcatcher coil is operating close enough to its self-resonant
frequency that the self-resonant effects are certainly present.

A 75m bugcatcher coil can be considered to be a lumped circuit
impedance at 60 Hz but certainly not at 4000000 Hz. In fact,
that is the whole question. At what frequency can the lumped
circuit model be validly used on a 75m bugcatcher coil? I'm
willing to bet that frequency is lower than 1000000 Hz.

> It has no bearing at all on the discussion, ...

Wishful thinking on your part.
.
> In fact, a Tesla coil has more in common with a cavity resonator
> than it does with a conventional inductor."

A 75m bugcatcher coil has more in common with a cavity resonator
than it does with your lumped circuit inductance.

> "at its operating frequency, a Tesla coil is NOT a
> lumped-element induction coil".

Neither is a 75m bugcatcher coil.

> Everyone in the conversation has been very careful to clearly establish
> the boundary conditions that the behavior we are talking about is
> significantly below self-resonance, an inductor of compact form factor,
> and an inductor of good design.

A 75m bugcatcher coil used on 4 MHz is NOT significantly below
the self-resonant frequency of 9-10 MHz.

THE LUMPED-CIRCUIT MODEL FAILS IN A STANDING
WAVE ENVIRONMENT! In the face of that simple technical fact,
all other discussion is moot. Anyone wishing to validly model a
75m bugcatcher coil used on a mobile antenna is forced to choose
a model that does not presuppose faster than light wave travel
through a 75m bugcatcher coil. It's as simple as that.

Tom, with a straight face, I want you to assert that the RF waves
on a 75m bugcatcher mobile antenna are traveling faster than
the speed of light. If it takes 125 nanoseconds for the forward
current wave to make it from the end of the antenna and back
to the feedpoint, then the lumped-circuit model yields invalid
results. TDR anyone?
--
73, Cecil, W5DXP

2403. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 18:36:00 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <g9qdnSS2N6hXWIzZRVn-uQ@adelphia.com>
Source record: 63464

w8ji@akorn.net wrote:

> That is incorrect for the conditions we are outlining, and it is
> misleading Cecil. It has him lost in a world of reflections. You have
> gone outside the limits of the model by assuming, incorrectly, the
> inductor has no or little flux linkage from end-to-end and has large
> stray capacitance to the outside world compared to load impedance. The
> conductor used to build a inductor does not have current slowly winding
> its way along that path.
>
> There is no virtually no difference in phase delay in current at each
> end of a relatively compact inductor. It is very easy to measure that.
> It also have very little group delay compared to the group delay one
> would expect from a transmission line or antenna the same length. I
> know that because I have measured it hundreds of times.
(snip)

Real world inductors cover a wide range of construction from tiny
(with respect to wavelength) units that have tight flux linkage
between all turns, to extended things that fade into slow wave, high
inductance transmission lines (think of a straight conductor with
ferrite beads strung on it. Any discussion of inductors and waves
needs to either select an example inductor for discussion, or remain
general enough to cover anything that might be called an inductor.

Or else, endless and pointless arguments will ensue.

2404. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 19:00:44 UTC
From: w8ji@akorn.net
Message-ID: <1142017244.466593.309060@i40g2000cwc.googlegroups.com>
Source record: 63465

Cecil Moore wrote:
> A 75m bugcatcher coil used on 4 MHz is NOT significantly below
> the self-resonant frequency of 9-10 MHz.

Yes it is, but no so far as to have perfectly equal currents at each end an zero phase shift in current. It is in the neither land between a Tesla coil (which is still nothing like my mobile antenna, but at least getting closer) and a idealized lumped component.

> THE LUMPED-CIRCUIT MODEL FAILS IN A STANDING
> WAVE ENVIRONMENT! In the face of that simple technical fact,
> all other discussion is moot. Anyone wishing to validly model a
> 75m bugcatcher coil used on a mobile antenna is forced to choose
> a model that does not presuppose faster than light wave travel
> through a 75m bugcatcher coil. It's as simple as that.

Nonsense. You are ignoring the coupling mechanisim inside the inductor.

> Tom, with a straight face, I want you to assert that the RF waves
> on a 75m bugcatcher mobile antenna are traveling faster than
> the speed of light. If it takes 125 nanoseconds for the forward
> current wave to make it from the end of the antenna and back
> to the feedpoint, then the lumped-circuit model yields invalid
> results. TDR anyone?

They are not travelling faster than light.

What you (and the one or two others who seem to agree with you) repeatedly ignore or forget is magnetic flux couples one turn to another. A real inductor is always someplace between the two extremes of something like a radial mode helice (helically loaded whip) and an ideal lumped component.

Since you have taken the path of totally forgetting or ignoring flux coupling, you are reaching incorrect conclusions. Using the Tesla coil model is a good example.

Everyone is freely admitting there is *some* transmission line effect going on. There is some distrbuted component (a series of inductors shunted by capacitors) going on.

Everyone (except you) is being careful to qualify remarks by specifying the inductor is operating well below self-resonance.

If you weren't so pig-headed you could look at the measured data at:

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

...and see that as inductors move towards self-resonance they do begin to display characteristics of transmission lines.

It's too bad in three years you have claimed others made a measurement error, when in fact the error is in thinking all of the current in a loading coil slowly winds its way around turn by turn and the magnetic field linking turns does not cause charges in other turns to move long before current traveleing at light speed would wind through the copper path.

Until you stop, put the beer away, and think about this a while you'll continue to butt your head up against people who KNOW how inductors behave.

73 Tom

2405. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 19:29:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <hskQf.28749$rL5.13469@newssvr27.news.prodigy.net>
Source record: 63466

Wes Stewart wrote:
> "Cecil Moore" <mycall@arrl.net> wrote:
>> Wes knew what I meant.
>
> I did?

Hopefully anyone with an IQ above 80 knew that. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2406. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 19:37:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dAkQf.28820$rL5.15158@newssvr27.news.prodigy.net>
Source record: 63467

John Popelish wrote:
> Any discussion of inductors and waves needs to either
> select an example inductor for discussion,

e.g., 75m bugcatcher mobile loading coil.

> or remain general enough to
> cover anything that might be called an inductor.

e.g., Maxwell's equations. Certainly not a lumped-circuit
model that presupposes that EM waves travel through anything
and everything faster than the speed of light.

> Or else, endless and pointless arguments will ensue.

Yep, notice how the inductors that Tom is talking keep
getting smaller and smaller with time. Pretty soon they
will indeed be point-sized inductors. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2407. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 20:14:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <57lQf.55569$Jd.21377@newssvr25.news.prodigy.net>
Source record: 63468

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>A 75m bugcatcher coil used on 4 MHz is NOT significantly below
>>the self-resonant frequency of 9-10 MHz.
>
> Yes it is, but not so far as to have perfectly equal currents at each
> end an zero phase shift in current. It is in the neither land between a
> Tesla coil (which is still nothing like my mobile antenna, but at least
> getting closer) and a idealized lumped component.

That's about a 99% change in attitude from when we started this
discussion a couple of years ago. At that time you were claiming
that a 75m bugcatcher coil modeled as a lumped inductance with
EZNEC showed zero change in current magnitude and phase and that
was that. I'm glad to see the truth winning for a change.

I think you are going to have to go a *LOT* lower in frequency
than 4000000 Hz before a 75m bugcatcher coil can be treated as
a lumped-inductance.

>>THE LUMPED-CIRCUIT MODEL FAILS IN A STANDING
>>WAVE ENVIRONMENT! In the face of that simple technical fact,
>>all other discussion is moot. Anyone wishing to validly model a
>>75m bugcatcher coil used on a mobile antenna is forced to choose
>>a model that does not presuppose faster than light wave travel
>>through a 75m bugcatcher coil. It's as simple as that.
>
> Nonsense. You are ignoring the coupling mechanisim inside the inductor.

That coupling mechanism works, at best, a lot
lower than the speed of light and only on the voltage. In
a high-Q inductor, the current is known to lag the voltage
by a phase angle approaching 90 degrees. Do you have any
idea what the velocity factor of a 75m bugcatcher coil is?
I'll bet Reg can tell us.

If the voltage is indeed traveling at the speed of light, the
current is known to lag the voltage by a large number of degrees
approaching 90 degrees for an ideal coil. The laws of physics
strikes again. How can you bring yourself to ignore them? The
voltage cannot travel faster than the speed of light and the
current is lagging by, e.g. 60 degrees. It's hard not to suffer
a 40 nS current wave delay through the coil on 4 MHz. I've told
this to you before but you have avoided the subject like a plague.

> What you (and the one or two others who seem to agree with you)
> repeatedly ignore or forget is magnetic flux couples one turn to
> another. A real inductor is always someplace between the two extremes
> of something like a radial mode helice (helically loaded whip) and an
> ideal lumped component.

You are talking about the E-field, not the H-field. I can agree with
the E-field propagating at the speed of light but the H-field is
known to lag the E-field by an angle approaching 90 degrees in the
limit for an ideal inductor. Or is that another law of physics that
you simply choose to ignore?

> Everyone is freely admitting there is *some* transmission line effect
> going on. There is some distrbuted component (a series of inductors
> shunted by capacitors) going on.

Are you admitting that a 75m bugcatcher coil can be modeled as a
transmission line with a Z0 and a VF? If so, you are giving up
on your lumped-constant model. Actually, since the lumped-constant
model is a subset of the distributed-network model, the lumped-
constant model is very often wrong when the distributed-network
model is correct. OTOH, it is impossible for the lumped-constant
analysis to be right while the distributed-network analysis is
wrong. So much for your choice of models.

> Everyone (except you) is being careful to qualify remarks by specifying
> the inductor is operating well below self-resonance.

A 75m bugcatcher coil is NOT operating "well below" self-resonance.
It is operating at 1/2 the self-resonant frequency. If one adds one
foot at a time to the stinger above a 75m bugcatcher coil, at exactly
what frequency does it cease to act like a "velocity inhibited
slow-wave helical" and start acting like a lumped inductance? I
propose that frequency is considerably lower than 1000000 Hz.

> If you weren't so pig-headed you could look at the measured data at:
> http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

You measured standing wave current, Tom. Your measurements are
meaningless! Standing wave current has the same constant phase
whether the coil exists or not. Your measurements prove absolutely
nothing that is not already known.
--
73, Cecil http://www.qsl.net/w5dxp

2408. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 20:24:41 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-4A4374.14244010032006@newsclstr02.news.prodigy.com>
Source record: 63469

In article <j17312dlulking3cem4engv6i0nk04tf4m@4ax.com>,
John Ferrell <johnferrell@sprintmail.com> wrote:

> The 1/2 wave difference on 40M of 7.2 and 7.1mhz is only about a foot.
> The change in a DIPOLE at 40M would be difficult to measure.
>
> I would not change it.
> Do you have an indication that it needs adjustment?

John,

When i trimmed it the first time (years ago) I was working mostly SSB so it is great in phone band and okay in the old Novice portion. I am now working mostly 40 meter RTTY and PSK and these are at 7.070 and 7.035.

The current antenna shows SWR of about 1:8 at 7.100 and goes up to 2:0 at 7.050. My TS-570S tuner makes the rig smile but I feel it would be better if I could extend it a bit.

The problem is there is no wrapped back wire that I could let out and hate to use a jumper extender at the loading coil.

I may have to just bit the bullet and cut some wire per the formulas by Steve, K9DCI, and solder it in the middle some place.

Still thinking about it. The WX in South Texas is too nice for antenna work. I will probably put it off until the WX is bad.

73, Dick AA5VU

2409. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 20:39:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <VtlQf.55577$Jd.6917@newssvr25.news.prodigy.net>
Source record: 63470

Dick, AA5VU wrote:
> The current antenna shows SWR of about 1:8 at 7.100 and goes up to
> 2:0 at 7.050. My TS-570S tuner makes the rig smile but I feel it would
> be better if I could extend it a bit.

If you enjoy lowering your SWR below 2:1, go for it. If you
think it will help the ham on the other end copy you better,
you are, as someone has said before, picking fly spots out
of black pepper.
--
73, Cecil http://www.qsl.net/w5dxp

2410. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 21:25:07 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <T8mQf.913$_f4.191@trnddc03>
Source record: 63471

"Dick, AA5VU" <aa5vuNOSPAM@arrl.net> wrote in message
news:aa5vuNOSPAM-4A4374.14244010032006@newsclstr02.news.prodigy.com...
> In article <j17312dlulking3cem4engv6i0nk04tf4m@4ax.com>,
> John Ferrell <johnferrell@sprintmail.com> wrote:
>
>> The 1/2 wave difference on 40M of 7.2 and 7.1mhz is only about a foot.
>> The change in a DIPOLE at 40M would be difficult to measure.
>>
>> I would not change it.
>> Do you have an indication that it needs adjustment?
>
> John,
>
> When i trimmed it the first time (years ago) I was working mostly SSB so
> it is great in phone band and okay in the old Novice portion. I am now
> working mostly 40 meter RTTY and PSK and these are at 7.070 and 7.035.
>
> The current antenna shows SWR of about 1:8 at 7.100 and goes up to
> 2:0 at 7.050. My TS-570S tuner makes the rig smile but I feel it would
> be better if I could extend it a bit.
>
> The problem is there is no wrapped back wire that I could let out and
> hate to use a jumper extender at the loading coil.
>
> I may have to just bit the bullet and cut some wire per the formulas by
> Steve, K9DCI, and solder it in the middle some place.
>
> Still thinking about it. The WX in South Texas is too nice for antenna
> work. I will probably put it off until the WX is bad.
>
> 73, Dick AA5VU

I am not familair with this antenna, but if it has a choke/trap for 40M,
just add a foot of wire on the side of the choke/trap that is closest to the
center insulator- let it hang down and dangle. You can clip it on as one
poster said- this is a high Z point and contact resistance is a non-issue.
But as others have said, the on-air difference is zero.

Dale W4OP

2411. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 21:27:46 UTC
From: Litzendraht <k5cey@juno.com>
Message-ID: <1142026066.846519.278750@i39g2000cwa.googlegroups.com>
Source record: 63472

Chris,

I think $12.50 plus postage sounds like a fair price. Or two for
$20.00 plus postage.

I don't have Paypal.

I'm good in the Call Book or QRZ.

John K5CEY

2412. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 21:36:31 UTC
From: w8ji@akorn.net
Message-ID: <1142026591.641276.21100@p10g2000cwp.googlegroups.com>
Source record: 63473

Cecil Moore wrote:
> You measured standing wave current, Tom. Your measurements are
> meaningless! Standing wave current has the same constant phase
> whether the coil exists or not. Your measurements prove absolutely
> nothing that is not already known.

Nothing I have said has changed from what I've said for years.

Now you have magnetic fields traveling slower than light speed in air,
and have gone right back to the same nonsense of standing wave current.

Please tell us all how you would measure the "traveling current" while
ignoring "standing wave current".

This ought to be good.....

2413. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 22:11:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tQmQf.74879$PL5.62004@newssvr11.news.prodigy.com>
Source record: 63474

w8ji@akorn.net wrote:
> Please tell us all how you would measure the "traveling current" while
> ignoring "standing wave current".

Good question. One would ideally do it in a system without
reflections. I am struggling with that concept right now.

The best thought I have come up with so far is simple:

```
coil
+----////----+
| |
source --- cap
| ---
| |
+--/\/\/\/\--+
resistor
```

I'm not a measurements guy so I could use some help.

What's wrong with just reporting the measured the delay
through your test coils? Your measured data already
shows the current on one side of the coil to be
different from the current on the other side of the
coil. All we have to worry about now is the delay
through the coils.

If I've got your attention, let me repeat something I
posted days ago.

The forward current through the coil can indeed be assumed
to be equal magnitude at both ends of the coil without much
error. That should make you happy.

The delay through the coil is whatever it is but it is
nowhere near zero. I assume that makes you unhappy.

The reflected current through the coil can indeed be
assumed to be equal magnitude at both ends of the coil
without much error. That should make you happy.

The delay through the coil is whatever it is but it is
nowhere near zero. I assume that makes you unhappy.

The standing wave is the phasor sum of the forward wave
and reflected wave. Its magnitude can vary from about
double the forward current at a current loop to close to
zero at a current node. I assume that makes you unhappy.

The standing wave phase is close to constant and fixed
near zero degrees within 1/4WL of the feedpoint. I assume
that makes you happy.

So three out of six results should make you happy and
that's about all any mere mortal can hope for. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2414. ScrewDriver Antenna Article in February Antennex issue

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 22:18:17 UTC
From: Ed Laughery <laughery@bellsouth.net>
Message-ID: <GTmQf.3129$C7.911@bignews2.bellsouth.net>
Source record: 63475

Hi

I would appreciate a review of the ScrewDriver antenna article in the February 2006 issue of Antennex.

1. Is it a full construction article?
2. If #1 is true, can the antenna as described be built from easily obtainable components and buit with a resonable toolset?
3. any other comments you would care to share

Thanks in advance to all for their consideration.

73 de Ed AD5JV

2415. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 22:33:46 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <61u312h7g0gdhnovl9cqi8mi2kom8e93tt@4ax.com>
Source record: 63376

I agree on the part about the wx.
I doubt the antenna is really centered on 7.2 if it is up to 2:1 at 7.050. IF I were going to try to change anything, I would go to the hardware store electrical department and get a couple of screw type wire splices that are intended to splice about 12 ga. wire. Get the type that come apart so that you don't have to cut the antenna to string them on the wire. Alligator clips don't weather well here. You can add a foot on each end of the 40M section and trim from there. I hope the antenna goes up & down easy!

I would keep tabs on what is happening to the 80M operation as I went. The environment around the antenna (height above ground, quality of ground) may lead to erratic measurements. 2:1 is not a bad SWR. Your ability to tune it out fixes everything except the losses in the tuner and I doubt if they are high enough to consider!

Before you take any advice from me remember I consider myself an antenna student, not an expert!

On Fri, 10 Mar 2006 20:24:41 GMT, "Dick, AA5VU" <aa5vuNOSPAM@arrl.net> wrote:

>In article <j17312dlulking3cem4engv6i0nk04tf4m@4ax.com>,
> John Ferrell <johnferrell@sprintmail.com> wrote:
>
>> The 1/2 wave difference on 40M of 7.2 and 7.1mhz is only about a foot.
>> The change in a DIPOLE at 40M would be difficult to measure.
>>
>> I would not change it.
>> Do you have an indication that it needs adjustment?
>
>John,
>
>When i trimmed it the first time (years ago) I was working mostly SSB so
>it is great in phone band and okay in the old Novice portion. I am now
>working mostly 40 meter RTTY and PSK and these are at 7.070 and 7.035.
>
>The current antenna shows SWR of about 1:8 at 7.100 and goes up to
>2:0 at 7.050. My TS-570S tuner makes the rig smile but I feel it would
>be better if I could extend it a bit.
>
>The problem is there is no wrapped back wire that I could let out and
>hate to use a jumper extender at the loading coil.
>
>I may have to just bit the bullet and cut some wire per the formulas by

>Steve, K9DCI, and solder it in the middle some place.
>
>Still thinking about it. The WX in South Texas is too nice for antenna
>work. I will probably put it off until the WX is bad.
>
>73, Dick AA5VU
John Ferrell W8CCW

2416. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 22:40:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <afnQf.57841$dW3.42652@newssvr21.news.prodigy.com>
Source record: 63377

John Popelish wrote:
> When you talk about current flowing, you seem to be thinking of current
> waves traveling along a conductor. Others seem to be saying "current"
> and thinking of charge movement. I think that only the second is
> technically correct ...

John, many thanks for some rationality from a cool head.

Conventions aside, that sounds about right. So would you agree
that if there's a forward current of one amp and a reflected
current of one amp, the net charge movement is zero and therefore
the standing wave current is not "going" anywhere? How can something
with a constant fixed phase angle of zero degrees "go" anywhere?

> Standing waves involve no net wave travel in either direction, though
> anywhere except at the current nodes, charge is certainly moving back
> and forth along the conductor, during a cycle.

That's unclear to me. Why can't the E-field and H-field simply be
exchanging energy at a point rather than any net charge moving
laterally?
--
73, Cecil http://www.qsl.net/w5dxp

2417. Re: ScrewDriver Antenna Article in February Antennex issue

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-10 23:03:13 UTC
From: jgboyles@aol.com
Message-ID: <1142031793.881677.62510@p10g2000cwp.googlegroups.com>
Source record: 63378

Ed Laughery wrote:
> Hi
>
> I would appreciate a review of the ScrewDriver antenna article in the
> February 2006 issue of Antennex.
>
> 1. Is it a full construction article?
> 2. If #1 is true, can the antenna as described be built from easily
> obtainable components and buit with a resonable toolset?
> 3. any other comments you would care to share
>
> Thanks in advance to all for their consideration.
>
> 73 de Ed AD5JV

Hi Ed, they ran an article on a Screwdriver 4 or 5 years ago but it was not a full construction as one would see in QST. Antennex does not usually give full construction details, they want you to experiment. That also keeps the cost of the articles down. As I remember the copper fingers are the most difficult to obtain.

Whether it can be easily built, you may have to do like I am considering, suscribe.
Good Luck.
Gary N4AST

2418. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 00:03:11 UTC
From: w8ji@akorn.net
Message-ID: <1142035391.663711.293230@j33g2000cwa.googlegroups.com>
Source record: 63379

Cecil Moore wrote:

> What's wrong with just reporting the measured the delay
> through your test coils? Your measured data already
> shows the current on one side of the coil to be
> different from the current on the other side of the
> coil. All we have to worry about now is the delay
> through the coils.

What measurement are you talking about? The one I did over two years ago that has been up on my web site since that time? Something on a bench?

2419. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 00:54:07 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <PcpQf.8355$8w2.6667@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63380

Cecil Moore wrote:
> John Popelish wrote:
>
>> When you talk about current flowing, you seem to be thinking of
>> current waves traveling along a conductor. Others seem to be saying
>> "current" and thinking of charge movement. I think that only the
>> second is technically correct ...
>
>
> John, many thanks for some rationality from a cool head.
>
> Conventions aside, that sounds about right. So would you agree
> that if there's a forward current of one amp and a reflected
> current of one amp, the net charge movement is zero and therefore
> the standing wave current is not "going" anywhere? How can something
> with a constant fixed phase angle of zero degrees "go" anywhere?
>
>> Standing waves involve no net wave travel in either direction, though
>> anywhere except at the current nodes, charge is certainly moving back
>> and forth along the conductor, during a cycle.
>
>
> That's unclear to me. Why can't the E-field and H-field simply be
> exchanging energy at a point rather than any net charge moving
> laterally?

Cecil,

I think I said all of that before the fun and games started. In any case I agree 100% with John.

Let me try again to answer your question. This is all very basic textbook stuff. I claim not the slightest bit of credit for any of this.

First, I hope we can agree that current is defined as the movement of charge. In this case the charge moves only in the direction of the wire, let's call it the z-direction.

The generic equation for a forward traveling wave is simply:

y = A cos (kz-wt)

The generic equation for a reverse traveling wave is:

y = B cos (kz+wt)

One can add constant phase offsets to the cosine arguments, but it does not make any difference here. It just makes things look messy, especially in ASCII. The parameters k and w are not independent either, but again that does not really matter here.

In the case of current we can say:

If = Io cos (kz-wt)
Ir = Io cos (kz+wt)

I have set the "A" and "B" coefficients to the same value, Io, for simplicity. If the currents are not the same the math gets a little messier, but there is no fundamental difference. Keep in mind that the If and Ir refer to the current that moves along the z-direction, i.e., charge moving in the back-and-forth direction along the wire. The "f" refers to the forward "wave", and the "r" refers to the reverse "wave". The current in both cases is not "forward" or "reverse" but simply back-and-forth as in any AC condition. It is essential to separate the concepts of wave and current. They may be connected, but they are not the same, and they are not interchangeable.

OK, now lets add these two traveling waves together to make a standing wave. This is a linear system, and superposition applies. We can simply add the components. The basic equation is:

Isw = If + Ir = Io { cos (kz-wt) + cos (kz+wt) }

Through the use of a standard trigonometric identity this can be reduced to:

Isw = 2Io cos (kz) cos (wt)

What can be seen immediately is that the standing wave current still has exactly the same time dependence that the traveling waves had. The magnitude of the current is now a function of z, unlike the constant magnitude in the traveling waves. The "current" is still defined as above, namely the charge that moves back-and-forth in the z-direction.

The current oscillation factor (wt) is now decoupled from "z", unlike the traveling wave case. The "wave" is stationary. The current itself, however, behaves exactly the same as in the case of the traveling waves.

Of course there are important differences in radiation patterns for traveling waves and standing waves. The magnitude of the current is different along the wire. However, except at the standing wave nodes, the standing wave current is very real and non-zero.

I am almost embarrassed to write this, since surely you and most readers know all of this quite thoroughly. However, it appears you may have overlooked something. I hope this helps.

73,
Gene
W4SZ

2420. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 01:27:54 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142040474.488041.296530@i40g2000cwc.googlegroups.com>
Source record: 63381

And, of course, since the net current is a function of distance along the wire, it follows that in the case Gene described, charge in each section of wire goes through a cyclic, sinusoidal increase and decrease. In other words, the wire exhibits capacitance. See Reg's second sentence in the posting that started this whole set of insanity off. (One might call the current Reg mentions in the third sentence "displacement current" as is often done.) Yawn. (It's kind of fun to look at an animation of the case where the magnitude of If and Ir are not equal. It's pretty straightforward to program in Matlab or Scilab.)

Cheers,
Tom

2421. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 01:34:28 UTC
From: w8ji@akorn.net
Message-ID: <1142040868.926875.4670@j33g2000cwa.googlegroups.com>
Source record: 63382

At great risk, let me try this approach.

I have a 100 turn 2" diameter #18 gauge wire air core inductor. There are 100 turns, so there is about 630 inches or 32 feet of wire in the coil.

I have a Network Analyzer with port to port time delay measurement capability. It measures coaxial cables very well, and even clip leads.

Cecil, please predict or guess the group delay of this inductor at 3.8 MHz. Tell us all what that group delay means for your wave theory.

Just come close, and I will tell you what it measures. I can even print the plot just for you.

73 Tom

2422. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 01:46:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0_pQf.57869$dW3.18452@newssvr21.news.prodigy.com>
Source record: 63383

w8ji@akorn.net wrote:
> What measurement are you talking about? The one I did over two years
> ago that has been up on my web site since that time? Something on a
> bench?

That one on your web site measured the standing wave
current. We know the phase of the standing wave current
is irrelevent since it is essentially the same whether
the coil is in or out of the circuit. i.e. there is
no such thing as standing wave current "delay" since
the phase of the standing wave current is essentially
fixed at (or near) zero degrees.

You have measured the S12 delay for 100uH at 1 MHz to
be -60 to -70 degrees. What we need is the equivalent
of the S12 delay for current, rather than for voltage.
What is the current delay througn the coil when no
reflections are present? In other words, if the coil
were installed in a traveling-wave antenna, like a
terminated rhombic, what would the delay be through
the coil?
--
73, Cecil http://www.qsl.net/w5dxp

2423. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 01:55:48 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <rYSdnbrtpd1FsY_ZnZ2dnUVZ_smdnZ2d@adelphia.com>
Source record: 63384

Cecil Moore wrote:
> John Popelish wrote:
>
>> When you talk about current flowing, you seem to be thinking of
>> current waves traveling along a conductor. Others seem to be saying
>> "current" and thinking of charge movement. I think that only the
>> second is technically correct ...
>
>
> John, many thanks for some rationality from a cool head.
>
> Conventions aside, that sounds about right. So would you agree
> that if there's a forward current of one amp

By this I assume you mean a traveling current wave with an RMS value
of 1 amp.

> and a reflected current of one amp,

Meaning a returning current wave with an RMS current of 1 amp.

> the net charge movement is zero and therefore
> the standing wave current is not "going" anywhere?

Sorry, no. There is no net (average over one cycle) current, whether
the wave is traveling or standing. In both cases the instantaneous
current changes direction every half cycle at any given point. If
there is a standing wave made of a 1 ampere RMS current wave and a 1
ampere RMS returning wave, then the standing wave current will vary
from zero amperes RMS at current nodes to 2 amperes RMS at current
peaks. Looking just at just current, and at only a single point, a
traveling current wave and a standing current wave are
indistinguishable. You cannot tell if the measured RMS current is
made up of a wave traveling in one direction, or the sum of two waves
traveling in opposite directions.

> How can something with a constant fixed phase angle of zero degrees "go" anywhere?

The only way to understand a standing wave having a phase of zero
degrees, that makes sense to me, is that it applies to all points
between one current node and the next. The points between the next
two nodes have a phase of 180 degrees (charge is moving in the
opposite direction at all times) with respect to the points between
the first two nodes. So, if you pick some point between a pair of
current nodes, all other points along the standing wave must be either
be in phase with the current at that point, or 180 degrees out of

phase with it. In a standing wave, charge sloshes back and forth in
opposite directions between alternate pairs of current nodes.
Likewise, where the charge piles up and sinks (at the current nodes),
voltage peaks occur because of the charge accumulation or shortage.

>> Standing waves involve no net wave travel in either direction, though
>> anywhere except at the current nodes, charge is certainly moving back
>> and forth along the conductor, during a cycle.
>
>
> That's unclear to me. Why can't the E-field and H-field simply be
> exchanging energy at a point rather than any net charge moving
> laterally?

In an isolated EM plane wave, I think this is the case, and
displacement charge in space takes the place of conductor current.
But when a wave is guided by a conductor, we can measure the charge
sloshing back and forth in the conductor in response to those fields.

Take a look at:
http://galileo.phys.virginia.edu/classes/109N/more_stuff/Maxwell_Eq.html
about half way down.

Here is an excerpt:

(begin excerpt)

"Displacement Current"

Maxwell referred to the second term on the right hand side, the
changing electric field term, as the "displacement current". This was
an analogy with a dielectric material. If a dielectric material is
placed in an electric field, the molecules are distorted, their
positive charges moving slightly to the right, say, the negative
charges slightly to the left. Now consider what happens to a
dielectric in an increasing electric field. The positive charges will
be displaced to the right by a continuously increasing distance, so,
as long as the electric field is increasing in strength, these charges
are moving: there is actually a displacement current. (Meanwhile, the
negative charges are moving the other way, but that is a current in
the same direction, so adds to the effect of the positive charges'
motion.) Maxwell's picture of the vacuum, the aether, was that it too
had dielectric properties somehow, so he pictured a similar motion of
charge in the vacuum to that we have just described in the dielectric.
This is why the changing electric field term is often called the
"displacement current", and in Ampere's law (generalized) is just
added to the real current, to give Maxwell's fourth -- and final --
equation.

(end excerpt)

2424. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 02:13:27 UTC
From: w8ji@akorn.net
Message-ID: <1142043207.752336.206250@j52g2000cwj.googlegroups.com>
Source record: 63385

Cecil,

Earlier you made comments about the time delay through a 75 meter loading inductor being somewhere around 60 nS or so.

You have consistently disagreed with me when I said time delay through an inductor with tight mutual coupling from turn-to-turn is somewhat close to light speed over the physical length of the inductor, rather than the time it takes current to wind its way around through the copper. You didn't like my measurement of a small 100uH choke, and said a large inductor like a bug catcher coil is different. You predicted standing waves in that inductor.

I have a 100 turn 2 inch diameter air wound inductor of pretty good quality. It is 10 inches long.

Please tell all of us the time delay you expect in that inductor on 3.8 MHz. Please tell all of us what that delay means for your various changing theories about waves standing in that coil.

I'll sweep the inductor from below the BC band up to 30MHz in a time measurement mode and post the printout of the sweep with scale values and markers that show time delays.

73 Tom

2425. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 02:55:25 UTC
From: w8ji@akorn.net
Message-ID: <1142045725.211081.71000@u72g2000cwu.googlegroups.com>
Source record: 63386

> I went to the trouble of measuring my soil conductivity; using the "4 rod
> method", with 60 Hz AC, as per the ARRL handbook (Measured 52 mS/m in
> Calgary). I believe I have JPEGs of the relevant pages someplace. Also
> some guys I was working with, a couple of years ago, devised a method of
> measuring the complex permittivity with a capacitor structure. There were
> some problems with the method, which they eventually corrected. The

Frank,

The measurement method in the Handbook is seriously flawed. You will
almost always measure something many times better than the soil really
is at radio frequencies.

Since soil conductivity varies widely over small distances, and since
it also has seasonal variations, a rough guess from a book is about as
good as anything.

Myself, I don't worry about it. I just use average soil in models.

73 Tom

2426. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 03:16:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eirQf.35985$_S7.23502@newssvr14.news.prodigy.com>
Source record: 63387

Gene Fuller wrote:
> Isw = 2Io cos (kz) cos (wt)
>
> What can be seen immediately is that the standing wave current still has
> exactly the same time dependence that the traveling waves had. The
> magnitude of the current is now a function of z, unlike the constant
> magnitude in the traveling waves. The "current" is still defined as
> above, namely the charge that moves back-and-forth in the z-direction.

On the contrary, when kz is not linked by a plus or minus sign
to wt, the wave doesn't move anymore. Maybe you need a review?

Gene, you are a genius. Why didn't I think of that? I recognize
that equation from "Optics", by Hecht. Pick any point, 'z', and
see what you get. Hecht says, "It doesn't rotate at all, and the
resultant wave it represents *DOESN'T PROGRESS THROUGH SPACE* - it's
a standing wave." The RF equivalent of a standing wave of light that
doesn't progress through space is an RF standing wave that doesn't
progress through a wire. That's what I have been telling you guys.
Standing waves don't move. Standing wave current doesn't flow!
Even in empty space, a light standing wave doesn't progress
through space, i.e. IT DOESN'T MOVE!
That is on page 289 of "Optics", by Hecht, 4th edition.

From "Fields and Waves ...", by Ramo & Whinnery, in describing the
standing wave situation: "The total energy in any length of line
a multiple of a quarter wavelength long is constant, *merely
interchanging between energy in the electric field of the voltages
and energy in the magnetic field of the currents*." Again, proof
that standing wave energy doesn't flow. It just stands there
being exchanged between the E-fields and the H-fields.
That is from page 40 of "Fields and Waves in Communications
Electronics", by Ramo, Whinnery, and Van Duzer.

Now I did make a mistake in what I said earlier and I apologize for
that. I said the energy in the E-field and H-field exchanges at a
"point" on the line. Obviously, since a current maximum occurs at
a voltage zero, that can't be true so I mis-spoke. Since the voltage
maximum is 1/4 wavelength away from the current maximum, as Ramo &
Whinnery say, one has to consider 1/4WL of line, and not a point as
I said.

Consider a 1/4WL section of line with a voltage maximum at Z and
a current maximum at Z+(1/4WL). The current at Z is zero and the
voltage at Z+(1/4WL) is zero. The net energy in that 1/4WL of line
is constant. No net energy is flowing into or out of that 1/4WL

of line. At some point the E-field energy is strongest toward
the Z end and 1/4 cycle later, it is strongest toward the Z+(1/4WL)
end. Since there is no net energy flow into or out of the line,
there is no net current flow into or out of the line.

> The current oscillation factor (wt) is now decoupled from "z", unlike
> the traveling wave case. The "wave" is stationary. The current itself,
> however, behaves exactly the same as in the case of the traveling waves.

Sorry, you are wrong there, Gene. On that same page, Hecht says, "The
standing wave does not move through space: it is clearly not of the
form f(x +/- vt). For your equations that statement would be: The
standing wave current does not move through the wire: it is clearly
not of the form f(z +/- wt). When you separate the 'z' function from
the 'wt' function, the wave doesn't move anymore. It, well, it just
stands there, like a good little standing wave.

> Of course there are important differences in radiation patterns for
> traveling waves and standing waves. The magnitude of the current is
> different along the wire. However, except at the standing wave nodes,
> the standing wave current is very real and non-zero.

And stationary as Hecht says. Your own equation indicates that it
is stationary, i.e. not moving.

> I am almost embarrassed to write this, ...

As you should be for not realizing that [Isw = 2Io cos (kz) cos (wt)]
is "clearly not of the form f(z +/- wt)", i.e. of the form of a current
traveling wave that moves. Time to refresh you memory on that subject.
--
73, Cecil http://www.qsl.net/w5dxp

2427. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 03:34:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <SyrQf.35988$_S7.18014@newssvr14.news.prodigy.com>
Source record: 63389

John Popelish wrote:
>> the net charge movement is zero and therefore
>> the standing wave current is not "going" anywhere?
>
> Sorry, no.

Gene just posted the equation for standing wave current.

Isw = 2Io cos (kz) cos (wt)

This is definitely not in the form of a traveling wave.
Hecht, in "Optics" says the standing wave does not move
through space. Presumably, for the same reason, a
standing wave does not move through a wire.

> Looking
> just at just current, and at only a single point, a traveling current
> wave and a standing current wave are indistinguishable.

True but if you know the equation above, then they are distinguishable.

> The only way to understand a standing wave having a phase of zero
> degrees, that makes sense to me, is that it applies to all points
> between one current node and the next.

Yes, the subject in context is 1/4WL monopoles or 1/2WL dipoles.

>> That's unclear to me. Why can't the E-field and H-field simply be
>> exchanging energy at a point rather than any net charge moving
>> laterally?
>
> In an isolated EM plane wave, I think this is the case, and displacement
> charge in space takes the place of conductor current. But when a wave is
> guided by a conductor, we can measure the charge sloshing back and forth
> in the conductor in response to those fields.

Yes, I was confused about that. If the question is changed to: "Why
can't the E-field and H-field simply be exchanging energy within each
1/4WL rather than any net charge moving out of that 1/4WL?", it would
make sense.

Thanks John, for the refresher course.
--
73, Cecil http://www.qsl.net/w5dxp

2428. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 03:34:19 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <%yrQf.8704$8w2.3002@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63388

Cecil,

Good grief!!!!

I said several times that the standing wave does not move. I also said the "wave" is not the same thing as the "current". The current is nonzero even though the wave is stationary.

At this point it is obvious that you are just interested in causing a fuss, and not the slightest bit interested in reaching any sort of resolution of this item.

Bye.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Isw = 2Io cos (kz) cos (wt)
>>
>> What can be seen immediately is that the standing wave current still
>> has exactly the same time dependence that the traveling waves had. The
>> magnitude of the current is now a function of z, unlike the constant
>> magnitude in the traveling waves. The "current" is still defined as
>> above, namely the charge that moves back-and-forth in the z-direction.
>
>
> On the contrary, when kz is not linked by a plus or minus sign
> to wt, the wave doesn't move anymore. Maybe you need a review?
>
> Gene, you are a genius. Why didn't I think of that? I recognize
> that equation from "Optics", by Hecht. Pick any point, 'z', and
> see what you get. Hecht says, "It doesn't rotate at all, and the
> resultant wave it represents *DOESN'T PROGRESS THROUGH SPACE* - it's
> a standing wave." The RF equivalent of a standing wave of light that
> doesn't progress through space is an RF standing wave that doesn't
> progress through a wire. That's what I have been telling you guys.
> Standing waves don't move. Standing wave current doesn't flow!
> Even in empty space, a light standing wave doesn't progress
> through space, i.e. IT DOESN'T MOVE!
> That is on page 289 of "Optics", by Hecht, 4th edition.
>
> From "Fields and Waves ...", by Ramo & Whinnery, in describing the

> standing wave situation: "The total energy in any length of line
> a multiple of a quarter wavelength long is constant, *merely
> interchanging between energy in the electric field of the voltages
> and energy in the magnetic field of the currents*." Again, proof
> that standing wave energy doesn't flow. It just stands there
> being exchanged between the E-fields and the H-fields.
> That is from page 40 of "Fields and Waves in Communications
> Electronics", by Ramo, Whinnery, and Van Duzer.
>
> Now I did make a mistake in what I said earlier and I apologize for
> that. I said the energy in the E-field and H-field exchanges at a
> "point" on the line. Obviously, since a current maximum occurs at
> a voltage zero, that can't be true so I mis-spoke. Since the voltage
> maximum is 1/4 wavelength away from the current maximum, as Ramo &
> Whinnery say, one has to consider 1/4WL of line, and not a point as
> I said.
>
> Consider a 1/4WL section of line with a voltage maximum at Z and
> a current maximum at Z+(1/4WL). The current at Z is zero and the
> voltage at Z+(1/4WL) is zero. The net energy in that 1/4WL of line
> is constant. No net energy is flowing into or out of that 1/4WL
> of line. At some point the E-field energy is strongest toward
> the Z end and 1/4 cycle later, it is strongest toward the Z+(1/4WL)
> end. Since there is no net energy flow into or out of the line,
> there is no net current flow into or out of the line.
>
>> The current oscillation factor (wt) is now decoupled from "z", unlike
>> the traveling wave case. The "wave" is stationary. The current itself,
>> however, behaves exactly the same as in the case of the traveling waves.
>
>
> Sorry, you are wrong there, Gene. On that same page, Hecht says, "The
> standing wave does not move through space: it is clearly not of the
> form f(x +/- vt). For your equations that statement would be: The
> standing wave current does not move through the wire: it is clearly
> not of the form f(z +/- wt). When you separate the 'z' function from
> the 'wt' function, the wave doesn't move anymore. It, well, it just
> stands there, like a good little standing wave.
>
>> Of course there are important differences in radiation patterns for
>> traveling waves and standing waves. The magnitude of the current is
>> different along the wire. However, except at the standing wave nodes,
>> the standing wave current is very real and non-zero.
>
>
> And stationary as Hecht says. Your own equation indicates that it
> is stationary, i.e. not moving.
>
>> I am almost embarrassed to write this, ...
>

>
> As you should be for not realizing that [Isw = 2Io cos (kz) cos (wt)]
> is "clearly not of the form f(z +/- wt)", i.e. of the form of a current
> traveling wave that moves. Time to refresh you memory on that subject.

2429. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:02:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <iZrQf.35994$_S7.17851@newssvr14.news.prodigy.com>
Source record: 63390

w8ji@akorn.net wrote:

> I have a 100 turn 2" diameter #18 gauge wire air core inductor. There
> are 100 turns, so there is about 630 inches or 32 feet of wire in the
> coil.
>
> I have a Network Analyzer with port to port time delay measurement
> capability. It measures coaxial cables very well, and even clip leads.
>
> Cecil, please predict or guess the group delay of this inductor at 3.8
> MHz. Tell us all what that group delay means for your wave theory.

Tom, I have no idea since you chose not to post the length of
the coil or the inductance of the coil or the Q of the coil
or even the turns/inch of the coil.

Is your Network Analyzer equipped with current probes? If not,
you are wasting your time.
--
73, Cecil http://www.qsl.net/w5dxp

2430. Re: Concord,ca Police Department gives people tickets that have 820lbs. in a 1 ton pu truck

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:17:49 UTC
From: "blackhca@hotmail.com" <blackhca@hotmail.com>
Message-ID: <1142050669.354279.51200@j52g2000cwj.googlegroups.com>
Source record: 63391
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

JM wrote:
Server Used: [whois.arin.net]

207.44.246.76 = [ev1s-207-44-246-76.ev1servers.net]
OrgName: Everyones Internet
OrgID: EVRY
Address: 390 Benmar
Address: Suite 200
City: Houston
StateProv: TX
PostalCode: 77060
Country: US
NetRange: 207.44.128.0 - 207.44.255.255
CIDR: 207.44.128.0/17
NetName: EVRY-BLK-11
NetHandle: NET-207-44-128-0-1
Parent: NET-207-0-0-0-0
NetType: Direct Allocation
NameServer: NS1.EV1.NET
NameServer: NS2.EV1.NET
Comment:
RegDate:
Updated: 2002-05-08
RTechHandle: RW172-ARIN
RTechName: Williams Randy
RTechPhone: 1-713-579-2850
RTechEmail: admin@ev1.net
OrgAbuseHandle: ABUSE477-ARIN
OrgAbuseName: ABUSE
OrgAbusePhone: 1-713-579-2850
OrgAbuseEmail: abuse@ev1.net
OrgNOCHandle: NOC1445-ARIN
OrgNOCName: NOC
OrgNOCPhone: 1-713-579-2850
OrgNOCEmail: noc@ev1.net
OrgTechHandle: RW172-ARIN
OrgTechName: Williams Randy
OrgTechPhone: 1-713-579-2850
OrgTechEmail: admin@ev1.net
OrgTechHandle: VST3-ARIN
OrgTechName: Stinson Valarie
OrgTechPhone: 1-713-579-2850

OrgTechEmail: admin2@ev1.net
ARIN WHOIS database last updated 2006-03-10 19: 10
Enter ? for additional hints on searching ARIN's WHOIS database

DON'T have a nice day

2431. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:27:08 UTC
From: richardharrison@webtv.net
Message-ID: <28826-4412519C-544@storefull-3255.bay.webtv.net>
Source record: 63392

Cecil warned me that if I posted, the posting would be nit picked to pieces. I`ve read correct postings describing the incident and reflected waves on a transmission line, and Maxwell`s secret of radiation (displacement current produces a magnetic field same as conduction current). All this may be relevant or not to some extent, but they don`t seem to resolve the current through a coil.

Tom, W8JI wrote:
"You have consistently disagreed with me when I said the time delay through an inductor with tight mutual coupling from turn to turn is somewhat close to light speed over the physical length of the inductor, rather than the time it rakes to wind its way around the copper."

That contradicts established experience.

The property of reactance is to limit current flow. Inductive reactance limits by means of counter-emf which depends upon the rate at which current is changing in the coil. A-C current changes most rapidly at zero time (the axis crossings of the sine waveform). Lenz`s law says the counter-emf must oppose the growth of current in this case. Opposotion of the counter-emf causes the current to reach its maximum 1/4-cycle after the emf applied to the coil reaches its maximum. As almost everyone knows, the current lags by 90-degrees in a pure inductor. Make the turns coupling as tight as you can, the current is still delayed by 90-degrees.

Now, it surely is possible to bypass a perfect inductor with a capacitor to mitigate a delay.

I can`t repeat without retyping text on my screen, so the fact that I don`t retype everything only means I`m lazy.

Right or wrong, W8JI may never lose an argument, but when he is clearly wrong it should be pointed out.

Best regards, Richard Harrison, KB5WZI

2432. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:34:03 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%qsQf.49691$H71.30038@newssvr13.news.prodigy.com>
Source record: 63393

w8ji@akorn.net wrote:

> Cecil,
> You have consistently disagreed with me when I said time delay through
> an inductor with tight mutual coupling from turn-to-turn is somewhat
> close to light speed over the physical length of the inductor,

No, I haven't, Tom. What you are describing is the voltage delay.
I have never argued with you about the voltage delay through a
coil. It occurs at the speed of light adjusted for VF. In EE101
everybody learns that the voltage leads the current through a
coil. The question is by how much in a 75m bugcatcher coil?

Have you ever seen a graph of the voltage vs current at the
output of a series coil? It shows the current lagging the
voltage by 90 degrees. It takes a series resonant capacitor
to align the current with the voltage again.

> rather
> than the time it takes current to wind its way around through the
> copper.

If you can find a posting of mine like that, I'll give you $100.
If you can't find it, please admit you are fibbing again about
what I have said.

> You didn't like my measurement of a small 100uH choke,

I didn't say I didn't like it. You posted some results and then
described those same results differently as time passed. At the
moment, I have no idea what those results were. Was the -60 to
-70 degree delay a voltage delay or a current delay?

> and said
> a large inductor like a bug catcher coil is different. You predicted
> standing waves in that inductor.

Now we are getting to the truth. A 75m bugcatcher is closer to
being a Tesla coil than it is to being a lumped-inductor. It
satisfies R.W.P. King's advice that if the wire length used
to make the coil exceeds 1/6 wavelength then, "an adequate
representation of the reactance of a coil with a nonuniformly
distributed current is NOT POSSIBLE in terms of a coil with
a uniform current". The 75m bugcatcher uses very close to
1/6 wavelength of wire.

And yes, standing wave antennas have standing waves so a 75m
bugcatcher coil is emersed in a standing wave environment.
Quoting Dr. Corum: "Lumped element representations for coils
REQUIRE that the current is uniformly distributed along the
coil - no wave interference and no standing waves can be
present on lumped elements."

> I have a 100 turn 2 inch diameter air wound inductor of pretty good
> quality. It is 10 inches long.

What is the inductance? What is the Q?

> Please tell all of us the time delay you expect in that inductor on 3.8
> MHz. Please tell all of us what that delay means for your various
> changing theories about waves standing in that coil.

First please describe the circuit used to drive the coil, what other
components are in the loop, and how you are picking off the two currents
at the ends of the coil. Is your Network Analyzer equipped with current
probes? If not, you are wasting your time. We already know the delay for
the voltage will approximate the speed of light adjusted for VF.
--
73, Cecil http://www.qsl.net/w5dxp

2433. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:37:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tusQf.49724$H71.8280@newssvr13.news.prodigy.com>
Source record: 63394

Gene Fuller wrote:
> Good grief!!!!

Good grief!!! I've already posted in another posting that I
was mistaken about that. There is standing wave charge
migrating from end to end in a 1/4WL monopole. Next time
I have spaghetti, I'll give myself 20 licks with a wet
noodle.
--
73, Cecil http://www.qsl.net/w5dxp

2434. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 04:52:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AIsQf.49853$H71.16737@newssvr13.news.prodigy.com>
Source record: 63395

Richard Harrison wrote:

> Tom, W8JI wrote:
> "You have consistently disagreed with me when I said the time delay
> through an inductor with tight mutual coupling from turn to turn is
> somewhat close to light speed over the physical length of the inductor,
> rather than the time it rakes to wind its way around the copper."
>
> That contradicts established experience.

Tom seems to be confusing the effects of the E-field with the
effects of the H-field. The E-field propagates at the speed
of light through a coil. The H-field propagates at the
speed of light through a capacitor.

> Make
> the turns coupling as tight as you can, the current is still delayed by
> 90-degrees.

Can the actual current phase delay be estimated knowing the Q
of the coil? I don't recall a formula for that.

> Now, it surely is possible to bypass a perfect inductor with a capacitor
> to mitigate a delay.

Dang Richard, now you've told Tom how to run his experiment
in order to obtain the results he predicts. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2435. E[;0F Great Deals Here E[;0F

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 06:36:04 UTC
From: Kelly <vohvamwu@tngtalut.com>
Message-ID: <_kuQf.1361$br4.894@newsfe14.phx>
Source record: 63396

I discovered a great marketplace for specials,
deals and entertainment at
http://www.cashdeals4u2save.com !

`E$b:

2436. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 08:02:08 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97835AEA957doldridgsprintca@64.59.135.159>
Source record: 63397

rocky <mar.sv@mars.com> wrote in
news:mar.sv-A1022D.17240808032006@news-rdr-02.rdc-kc.rr.com:

> In article <Xns97808361D7DEBdoldridgsprintca@64.59.135.159>,
> Dave Oldridge <doldridg@leavethisoutshaw.ca> wrote:
>
>> Big Endian <nospam@nospam.com> wrote in
>> news:nospam-3801D8.18373207032006@news-rdr-02.rdc-kc.rr.com:
>>
>> >
>> > My center of a 3.8 Mhz doublet is at about 35 feet and am going to
>> > drop the ends from 30 feet to about 10 to 15 feet. Just wondering
>> > if it will make all that much difference if any?
>>
>> There will be a marked improvement in the low angle performance in
>> the direction off the ends of the antenna (the flattop is very poor
>> at this). This will come at the expense of a sight loss (about .8db)
>> off the pattern's top (where you can most afford it). You will also
>> experience a slight deterioration in the SWR (based on 50 ohm coax)
>> from about 1.34 to 2.05, easily managed by any tuner, including those
>> built into many radios. You will also find that you need to shorten
>> the antenna very slightly to maintain the same resonant frequency.
>>
>> This won't make it into a superior DX antenna but it may allow you to
>> hear things you missed before. Basically, Bob Heinlein was right.
>> There ain't any such thing as a free lunch.
>
> What I've read is that when the ends are dropped to an inverted Vee
> configuration the feedpoint impedance drops closer to 50 ohms, but the
> Vee bandwidth is more restricted. Hard to believe that lowering the
> ends by 15 feet from 30 would make all that much difference on 75
> meters.

It's only really noticeable on low-angle (about 30 degrees or so) signals
from the direction off the ends.

--
Dave Oldridge+
ICQ 1800667

2437. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 10:24:13 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-0225C7.04241211032006@newsclstr02.news.prodigy.com>
Source record: 63398

In article <T8mQf.913$_f4.191@trnddc03>,
"Dale Parfitt" <par@parelectronics.com> wrote:

> I am not familair with this antenna, but if it has a choke/trap for 40M,
> just add a foot of wire on the side of the choke/trap that is closest to the
> center insulator- let it hang down and dangle. You can clip it on as one
> poster said- this is a high Z point and contact resistance is a non-issue.
> But as others have said, the on-air difference is zero.
>
> Dale W4OP

Late yesterday afternoon I decided to try the two alligator clips and some wire to run a test to see what would happen. Sounds easy but I made it very hard. To make a long shaggy-dog story short I added the wire and the SWR went out of sight. It acted like a dead short. I then lowered he antenna and cut the wire in half and it was still terrible. I then trashed he alligator clips and wire to and it was still terrible. After two hours of screwing around, I found some dummy (me) had the coax switch on the old Ringo Ranger rather than the W9INN antenna. By this time it was too dark to mess with anything.

Going to start over when the sun comes up but this time I plan to ditch the alligator clips and attach a one foot wire using the connection nuts on the coil/trap or whatever w9inn used to call that thing between the 40 and 80 wires and will have the coax switch on the right antenna this time.

Dick AA5VU (red-faced)

2438. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 10:31:09 UTC
From: aRKay <REMOVEarkay@qsl.net>
Message-ID: <REMOVEarkay-DAB2E3.04310911032006@newsclstr02.news.prodigy.com>
Source record: 63399

In article <VtlQf.55577$Jd.6917@newssvr25.news.prodigy.net>,
Cecil Moore <mycall@arrl.net> wrote:

> Dick, AA5VU wrote:
> > The current antenna shows SWR of about 1:8 at 7.100 and goes up to
> > 2:0 at 7.050. My TS-570S tuner makes the rig smile but I feel it would
> > be better if I could extend it a bit.
>
> If you enjoy lowering your SWR below 2:1, go for it. If you
> think it will help the ham on the other end copy you better,
> you are, as someone has said before, picking fly spots out
> of black pepper.

Cecil,

You are correct but many of us tend to get obsessive about SWR. The
enemy of good is better and many of us have wasted hours trying to make
a good antenna better. It is part of being a ham.

Dick AA5VU

2439. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 10:43:22 UTC
From: w8ji@akorn.net
Message-ID: <1142073802.408256.64360@i40g2000cwc.googlegroups.com>
Source record: 63400

Cecil Moore wrote:
> > Now, it surely is possible to bypass a perfect inductor with a capacitor
> > to mitigate a delay.
>
> Dang Richard, now you've told Tom how to run his experiment
> in order to obtain the results he predicts. :-)

You say you will accept something, you ask for something to be done, and when it is offered you back up and stall, preparing advance excuses why it won't be done correctly and refusing to make a prediction.

You've eaten up hours of my time and the only thing I've learned is you don't want to learn, and you are so unsure of yourself you'll avoid any prediction of how something will work any way you can.

I'm just amazed you have to fall back on name calling, mubo-jumbo, and inuendo when someone offers to help you understand something. I'm all done with this too.

73 Tom

2440. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 10:52:08 UTC
From: w8ji@akorn.net
Message-ID: <1142074328.192282.159350@j52g2000cwj.googlegroups.com>
Source record: 63401

Gene Fuller wrote:
> Cecil,
>
> Good grief!!!!
>
> I said several times that the standing wave does not move. I also said
> the "wave" is not the same thing as the "current". The current is
> nonzero even though the wave is stationary.
>
> At this point it is obvious that you are just interested in causing a
> fuss, and not the slightest bit interested in reaching any sort of
> resolution of this item.
>
> Bye.
>
> 73,
> Gene
> W4SZ

Cecil also said he wanted a measurement. When I asked him to make a prediction, he made excuses why any result would be wrong and avoided any prediction.

Like you, I now am sure there is no reason to get caught up in any further exchange with him. Whatever he is trying to do, it certainly isn't teaching or learning.

73 Tom

2441. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 10:56:22 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1215b6onoaoke41@corp.supernews.com>
Source record: 63402

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>>> Now, it surely is possible to bypass a perfect inductor with a capacitor
>>> to mitigate a delay.
>> Dang Richard, now you've told Tom how to run his experiment
>> in order to obtain the results he predicts. :-)
>
> You say you will accept something, you ask for something to be done,
> and when it is offered you back up and stall, preparing advance excuses
> why it won't be done correctly and refusing to make a prediction.
>
> You've eaten up hours of my time and the only thing I've learned is you
> don't want to learn, and you are so unsure of yourself you'll avoid any
> prediction of how something will work any way you can.
>
> I'm just amazed you have to fall back on name calling, mubo-jumbo, and
> inuendo when someone offers to help you understand something. I'm all
> done with this too.

That's exactly what he did back in November 2003. I see he hasn't changed any. Wonder who the next person will be to get sucked in, jerked around, and disgusted.

Roy Lewallen, W7EL

2442. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 11:20:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <7oyQf.128$tN3.39@newssvr27.news.prodigy.net>
Source record: 63403

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>>Dang Richard, now you've told Tom how to run his experiment
>>in order to obtain the results he predicts. :-)
>
> You say you will accept something, you ask for something to be done,
> and when it is offered you back up and stall, preparing advance excuses
> why it won't be done correctly and refusing to make a prediction.

It was a joke, Tom. I am still trying to work out the measurement
details in my mind. It certainly won't do any good to measure
a parameter other than the one we want to measure.
--
73, Cecil http://www.qsl.net/w5dxp

2443. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 11:29:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <VwyQf.129$tN3.110@newssvr27.news.prodigy.net>
Source record: 63404

w8ji@akorn.net wrote:
> Cecil also said he wanted a measurement. When I asked him to make a
> prediction, he made excuses why any result would be wrong and avoided
> any prediction.

The concept is easy. The measurement it tricky. It won't do
a bit of good to measure the voltage delay and call it the
current delay. I asked you pointed questions about your
coil and measurement setup. Instead of responding with
answers to my questions, you respond with more ad hominem
attacks. One wonders what your motive really is. Did your
measurements support my side of the argument and now you
are ashamed to report those results?

If you refuse to make the measurements, I'll just find
someone else willing to do it or do it myself.
--
73, Cecil http://www.qsl.net/w5dxp

2444. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 11:33:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <3AyQf.130$tN3.83@newssvr27.news.prodigy.net>
Source record: 63405

Roy Lewallen wrote:
> That's exactly what he did back in November 2003. I see he hasn't
> changed any. Wonder who the next person will be to get sucked in, jerked
> around, and disgusted.

Here comes the junk yard dog guru gang. Tom has refused
to give me the necessary needed information about his
coil and his measurement configuration and you are blaming
me for that? With the information that he has provided
so far, I might as well be trying to guess how much
loose change he has in his pocket.
--
73, Cecil http://www.qsl.net/w5dxp

2445. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 11:50:23 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <3QyQf.131$tN3.120@newssvr27.news.prodigy.net>
Source record: 63406

Cecil Moore wrote:

> w8ji@akorn.net wrote:
>> You say you will accept something, you ask for something to be done,
>> and when it is offered you back up and stall, preparing advance excuses
>> why it won't be done correctly and refusing to make a prediction.

I'm not stalling, Tom, I'm waiting for you to provide the
information I requested. Why are you avoiding providing
that information? It's pretty simple stuff that anyone
would need to make a prediction.

1. What is the inductance of the coil? What is the
Q of the coil?

2. What kind of current probes are you using with your
Network Analyzer? What are the characteristics of the
driving source signal?

3. What is the schematic configuration of your test setup?
How can I possibly make a prediction without that schematic?

That is certainly a reasonable request. Without that
information, a prediction is impossible, not just for
me but for anyone else.
--
73, Cecil http://www.qsl.net/w5dxp

2446. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 11:54:25 UTC
From: w8ji@akorn.net
Message-ID: <1142078065.701187.54500@i40g2000cwc.googlegroups.com>
Source record: 63407
Body handling: HTML body converted to readable text

I wrote and all can read:

Tom, I have no idea since you chose not to post the length of
> the coil or the inductance of the coil or the Q of the coil
> or even the turns/inch of the coil.

Cecil: "I have no idea since you CHOSE to not post...blah blah blah"

Fact: I already had posted coil length, number of turns, diameter, and
I said the inductor has "pretty good quality".

2447. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 12:55:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0NzQf.132$tN3.62@newssvr27.news.prodigy.net>
Source record: 63408
Body handling: HTML body converted to readable text

w8ji@akorn.net wrote:
> I wrote and all can read:

Everyone please take a close look at the lengths to which
Tom will go to to deceive the readers. He has falsified
the following postings. He mixed and matched, cut and
pasted, from multiple postings made at different times
for the sole purpose of deceiving. That cannot happen
accidentally. That is a deliberately unethical act, a
lie about what I posted, and is probably criminal.

Please observe to what lengths Tom is willing to go to
divert the technical issues and hide the technical truth
in order to protect his lumped-circuit myths.

Here's is the entire posting: Where did Tom give the coil length?
****
w8ji@akorn.net wrote:

> I have a 100 turn 2" diameter #18 gauge wire air core inductor. There
> are 100 turns, so there is about 630 inches or 32 feet of wire in the
> coil.
>
> I have a Network Analyzer with port to port time delay measurement
> capability. It measures coaxial cables very well, and even clip leads.
>
> Cecil, please predict or guess the group delay of this inductor at 3.8
> MHz. Tell us all what that group delay means for your wave theory.

Tom, I have no idea since you chose not to post the length of
the coil or the inductance of the coil or the Q of the coil
or even the turns/inch of the coil.

Is your Network Analyzer equipped with current probes? If not,
you are wasting your time.
--
73, Cecil http://www.qsl.net/w5dxp
****
>
> To which Cecil Moore replied:

>>Tom, I have no idea since you chose not to post the length of
>>the coil or the inductance of the coil or the Q of the coil
>>or even the turns/inch of the coil.

That quote is my reply to Tom's *first* posting. I had
not read your *second* posting yet. Everything I said was
absolutely true about his first posting.

How unethical can one get? Tom cut and pasted multiple postings
from different times to try to deceive the readers. Not only is
it unethical but it is probably also illegal.
--
73, Cecil http://www.qsl.net/w5dxp

2448. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 14:37:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duunc6fga1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63409

Now, now, gentlemen, there's no need to re-start the Civil War. Put
away your literary weapons.

The slaves have all been freed and we now have computers.

A 100 turn coil, 10 inches long, 2 inches in diameter, has an
inductance of 102 microhenrys, a Q of aproximately 380 at F = 1.9 MHz,
and the self-resonant frequency is 12.0 MHz.

Its radiation resistance at 1.9 MHz is negligible.

It is near enough to being exactly 100 microhenrys to justify it being
called an Inductance Standard.

Reg.

2449. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 15:04:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <qGBQf.142$tN3.112@newssvr27.news.prodigy.net>
Source record: 63410

Reg Edwards wrote:
> A 100 turn coil, 10 inches long, 2 inches in diameter, has an
> inductance of 102 microhenrys, a Q of aproximately 380 at F = 1.9 MHz,
> and the self-resonant frequency is 12.0 MHz. Its radiation resistance
> at 1.9 MHz is negligible.

Good stuff Reg. Modeling it as a transmission line, what would
be its Z0 and VF?
--
73, Cecil http://www.qsl.net/w5dxp

2450. Re: Q. about height of the ends of a doublet

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 15:57:43 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns978350FC7CFA4doldridgsprintca@64.59.135.159>
Source record: 63411

```
The BeNevolent dbu <relaxa.n.d@smeltherose.comm> wrote in
news:relaxa.n.d-EE6116.05533211032006@news-rdr-02.rdc-kc.rr.com:

> In article <Xns97835AEA957doldridgsprintca@64.59.135.159>,
> Dave Oldridge <doldridg@leavethisoutshaw.ca> wrote:
>
>> rocky <mar.sv@mars.com> wrote in
>> news:mar.sv-A1022D.17240808032006@news-rdr-02.rdc-kc.rr.com:
>>
>> > In article <Xns97808361D7DEBdoldridgsprintca@64.59.135.159>,
>> > Dave Oldridge <doldridg@leavethisoutshaw.ca> wrote:
>> >
>> >> Big Endian <nospam@nospam.com> wrote in
>> >> news:nospam-3801D8.18373207032006@news-rdr-02.rdc-kc.rr.com:
>> >>
>> >> >
>> >> > My center of a 3.8 Mhz doublet is at about 35 feet and am going
>> >> > to drop the ends from 30 feet to about 10 to 15 feet. Just
>> >> > wondering if it will make all that much difference if any?
>> >>
>> >> There will be a marked improvement in the low angle performance in
>> >> the direction off the ends of the antenna (the flattop is very
>> >> poor at this). This will come at the expense of a sight loss
>> >> (about .8db) off the pattern's top (where you can most afford it).
>> >> You will also experience a slight deterioration in the SWR (based
>> >> on 50 ohm coax) from about 1.34 to 2.05, easily managed by any
>> >> tuner, including those built into many radios. You will also find
>> >> that you need to shorten the antenna very slightly to maintain the
>> >> same resonant frequency.
>> >>
>> >> This won't make it into a superior DX antenna but it may allow you
>> >> to hear things you missed before. Basically, Bob Heinlein was
>> >> right. There ain't any such thing as a free lunch.
>> >
>> > What I've read is that when the ends are dropped to an inverted Vee
>> > configuration the feedpoint impedance drops closer to 50 ohms, but
>> > the Vee bandwidth is more restricted. Hard to believe that
>> > lowering the ends by 15 feet from 30 would make all that much
>> > difference on 75 meters.
>>
>> It's only really noticeable on low-angle (about 30 degrees or so)
>> signals from the direction off the ends.
>
> I am going to have both antennas up at the same time. I'll switch
```

> between the two and see if there is any difference on close in
> (100-300 miles) stations hearing me. The antennas will only be a few
> feet apart, one will be a dipole cut for around 3.8 and fed with 52
> ohm coax, the other is a 130 ft. center fed doublet using 450 ladder
> line. This may take a while because we're still in winter.

Assuming the mean RF CURRENT heights are the same and the two antennas
are not violently interacting, you shouldn't see much difference. There
will, of course always be some phasing differences between two different
antennas, even if they are otherwise equal. This cannot be avoided where
signals are being reflected off the ionosphere and the ground.

--
Dave Oldridge+
ICQ 1800667

2451. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:15:07 UTC
From: richardharrison@webtv.net
Message-ID: <23728-4412F78B-491@storefull-3254.bay.webtv.net>
Source record: 63414

Roy Lewallen, W7EL wrote:
"The mathematical treatment in King is quite complex. But nowhere does he mention any traveling, reflected, or standing current, power, or energy waves, or that inductance behaves any differently in an antenna than in a lumped circuit.."

Maybe something was overlooked. The above is just more squid ink.

Kraus characterizes inductors as helices. At one extreme they are stretched into straifht wires. At the other they collapse into single loops.

After years of wrangling it is time to admit that the old authors are right.

King and Wing were associates at Harvard.

Alexander H. Wing wrote on page 3 of "Transmission Lines, Antennas, and Wave Guides":
"5. Distributed constants - The Transmission line cannot be analyzed as a simple series circuit, because the current in the wires is not everywhere the same."

J.D. Kraus wrote on page 185 of his 1950 edition of "Antennas":
"Thus, a helix with circumference too small for the axial mode of radiation (circumferennce less than 2/3 wavelength) has a nearly sinusoidal current distribution, caused by alternate reinforcement and cancellation of two oppositely directed traveling waves on the helix of nearly equal amplitude Izero as suggested in Fig. 7-13c. Both traveling waves are of the Tzero transmission mode type."

I expedct no one will throw in the towel, but do expect more squirts of squid ink.

Best regards, Richard Harrison, KB5WZI

2452. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:16:01 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <DridneTYZcnpa4_ZRVn-vw@adelphia.com>
Source record: 63412

w8ji@akorn.net wrote:

> You say you will accept something, you ask for something to be done,
> and when it is offered you back up and stall, preparing advance excuses
> why it won't be done correctly and refusing to make a prediction.
>
> You've eaten up hours of my time and the only thing I've learned is you
> don't want to learn, and you are so unsure of yourself you'll avoid any
> prediction of how something will work any way you can.
>
> I'm just amazed you have to fall back on name calling, mubo-jumbo, and
> inuendo when someone offers to help you understand something. I'm all
> done with this too.

Dang! I was looking forward to your test results, and a description
of your test method. I think your 2" diameter coil is a good example
of an inductor that is neither a perfect "lump" nor a pure
transmission line.

2453. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:21:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <aOCQf.55893$Jd.11032@newssvr25.news.prodigy.net>
Source record: 63413

Reg Edwards wrote:
> A 100 turn coil, 10 inches long, 2 inches in diameter, has an
> inductance of 102 microhenrys, a Q of aproximately 380 at F = 1.9 MHz,
> and the self-resonant frequency is 12.0 MHz.

I'll bet the measured self-resonant frequency would be lower
if mounted as a base-loading coil on my pickup.

Seems the VF of the coil is 0.041 based on 10" being 1/4WL
at 12 MHz. Assuming that VF holds down to 1.9 MHz we
can calculate the electrical length of the coil on 1.9 MHz
which will be the same as the phase shift through the coil.

So I get about ~14 degrees of phase shift through that coil
at 1.9 MHz assuming the self-resonant frequency really
is 12 MHz at the spot where the coil is mounted.

If the coil were used on 3.8 MHz, the phase shift would
be ~28 degrees.

But my 75m bugcatcher coil shows to be self-resonant at
6.6 MHz while sitting there on my pickup being driven
by an MFJ-259B. It is 6.5" long. When 6.5" is 1/4WL
at 6.6 MHz, the VF = 0.0145, considerably lower than
the coil above and operating much closer to its self-
resonant frequency.

A length of 6.5" coil with a VF of 0.145 on 4 MHz is
~55 degrees of phase shift. And indeed the net current
at the top of the coil drops to about 2/3 of what it
is at the bottom.
--
73, Cecil http://www.qsl.net/w5dxp

2454. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:34:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <8_CQf.55899$Jd.1369@newssvr25.news.prodigy.net>
Source record: 63415

John Popelish wrote:
> Dang! I was looking forward to your test results, and a description of
> your test method. I think your 2" diameter coil is a good example of an
> inductor that is neither a perfect "lump" nor a pure transmission line.

That's what my back of the napkin calculations would indicate.
I get ~14 degrees at 1.9 MHz or ~28 degrees at 3.8 MHz based
on 90 degrees at 12 MHz.

But based on what these guys measured before, anyone would be
a fool to predict the results without knowing what the test
setup looks like. In fact, the prediction challenge was a
blatently obvious attempt to lead the unsuspecting down
a primrose path without a roadmap. Do you think W7EL would
ever make a prediction based on the meager amount of
information provided? :-) A few years ago he provided some
information but kept changing parameters daily until I got
tired and withdrew my estimate. But it turned out in the
end that I was pretty close.
--
73, Cecil http://www.qsl.net/w5dxp

2455. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:39:21 UTC
From: richardharrison@webtv.net
Message-ID: <23728-4412FD39-495@storefull-3254.bay.webtv.net>
Source record: 63416

Reg wrote:
"Now, now gentlemen, there is no need to re-start the Civil War."

In Texas we call it the War Between the States!

The following is from my daughter Linda Edwards (not related to Reg) who lives in London:
The scene is on a mexican golf course and the "Federales" are investigating an apparent homicide. Investigator asks: "What was the murder weapon?" Reply is: "A golf gun." Investigator asks "What`s a golf gun?" Reply is:
"Don`t know but it sure made a hole in Juan!"

best regards, Richard Harrison, KB5WZI

2456. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:52:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <efDQf.55901$Jd.32340@newssvr25.news.prodigy.net>
Source record: 63417

Richard Harrison wrote:
> J.D. Kraus wrote on page 185 of his 1950 edition of "Antennas":
> "Thus, a helix with circumference too small for the axial mode of
> radiation (circumferennce less than 2/3 wavelength) has a nearly
> sinusoidal current distribution, caused by alternate reinforcement and
> cancellation of two oppositely directed traveling waves on the helix of
> nearly equal amplitude Izero as suggested in Fig. 7-13c. Both traveling
> waves are of the Tzero transmission mode type."

Over on qrz.com, Tom was trying to prove Kraus wrong when he said in
"Antennas for All Applications", 3rd edition: "A coil (or trap) can
also act as a 180 degree phase shifter as in the collinear array
of 4 in-phase 1/2WL elements in Fig. 23-21B. Here the elements
present a high impedance to the coil which may be resonated without
an external capacitor due to its distributed capacitance. The coil
may also be thought of as a coiled-up 1/2WL element."

In trying to prove one could not obtain Kraus' 180 degree phase shift
with a coil [because everyone knows the phase shift is always zero],
Tom accidentally let slip the following - quoted from qrz.com:

> W8JI wrote:
>> "By the way, I swept S12 phase with my network analyzer on a
>> 100uH inductor a few hours ago while working on a phasing
>> system. The phase shift through that series inductor was about
>> -60 or -70 degrees on 1 MHz, ... "

Say what? Tom reporting a phase shift through an inductor? Will
miracles never cease?
--
73, Cecil http://www.qsl.net/w5dxp

2457. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 16:57:22 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <SjDQf.16951$Cp4.6692@edtnps90>
Source record: 63418

> The measurement method in the Handbook is seriously flawed. You will
> almost always measure something many times better than the soil really
> is at radio frequencies.
>
> Since soil conductivity varies widely over small distances, and since
> it also has seasonal variations, a rough guess from a book is about as
> good as anything.
>
> Myself, I don't worry about it. I just use average soil in models.
>
> 73 Tom

Thanks for your comments Tom, and you raise some valid points. Jerry Sevick "The Short Vertical Antenna and Ground Radial", pp 25, 26, does state that the procedure is accurate to within 25%, but does not provide any independant verification of these claims. The method was developed by M. C. Waltz at Bell Labs, but, again, nothing was ever published.

It would be interesting to develop a more accurate method. While my measurement of 52 mS/m may not be very realistic it is evident that this region does have a very high soil conductivity. Ground-wave daylight reception of AM broadcast stations, with strong signals, at well over 300 miles is possible.

73,

Frank

2458. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 17:30:19 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142098219.644998.299540@j52g2000cwj.googlegroups.com>
Source record: 63420

I think Reg's estimate of both inductance and first self-resonance (or is that self-anti-resonance?? ;-) are a bit high. Methods I trust all predict about 97uH and self-resonance at very close to 8MHz, for a coil wound with 16AWG to a 2-inch inner diameter. (Inductance would be a bit lower if that's the wire center-to-center diameter.) Winding and measuring one to see which estimate is closer is left as an exercise for the reader, but I wouldn't trust either Reg's or my estimates on this for building an inductance standard (and besides, I'd build such a standard with a lower L/D).

A transmission line model shows 13.5 electrical degrees of line at 1.9MHz, at about 6140 ohms. You should probably look up an article by John Mezak that appeared in "RF Design" some years ago before you to applying that info willy-nilly, but I don't really expect you will. Have fun.

Cecil Moore wrote:
> Reg Edwards wrote:
> > A 100 turn coil, 10 inches long, 2 inches in diameter, has an
> > inductance of 102 microhenrys, a Q of aproximately 380 at F = 1.9 MHz,
> > and the self-resonant frequency is 12.0 MHz. Its radiation resistance
> > at 1.9 MHz is negligible.
>
> Good stuff Reg. Modeling it as a transmission line, what would
> be its Z0 and VF?
> --
> 73, Cecil http://www.qsl.net/w5dxp

2459. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 17:31:59 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <Zs-dnfcKYtHflY7ZRVn-tg@adelphia.com>
Source record: 63419

Cecil Moore wrote:
> John Popelish wrote:
>
>> Dang! I was looking forward to your test results, and a description
>> of your test method. I think your 2" diameter coil is a good example
>> of an inductor that is neither a perfect "lump" nor a pure
>> transmission line.
>
>
> That's what my back of the napkin calculations would indicate.
> I get ~14 degrees at 1.9 MHz or ~28 degrees at 3.8 MHz based
> on 90 degrees at 12 MHz.
>
> But based on what these guys measured before, anyone would be
> a fool to predict the results without knowing what the test
> setup looks like. In fact, the prediction challenge was a
> blatently obvious attempt to lead the unsuspecting down
> a primrose path without a roadmap. Do you think W7EL would
> ever make a prediction based on the meager amount of
> information provided? :-) A few years ago he provided some
> information but kept changing parameters daily until I got
> tired and withdrew my estimate. But it turned out in the
> end that I was pretty close.

Predictions are little more than an ego trip, unless they are a test
of a specific calculation method used for the prediction. But I was
willing to wait for the test result and an after the fact description
of the test method, to see what understanding might be teased out that
combination of facts. The discussion might also have lead to a better
way to perform such a test.

Baby steps.

2460. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 17:36:06 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <8n1612lon2ba50kin6uk1mhicjdn9q6etc@4ax.com>
Source record: 63421

On Sat, 11 Mar 2006 10:15:07 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Alexander H. Wing wrote on page 3 of "Transmission Lines, Antennas, and
>Wave Guides":
>"5. Distributed constants - The Transmission line cannot be analyzed as
>a simple series circuit, because the current in the wires is not
>everywhere the same."

Hi Richard,

This FURTHER reveals the foolish pursuits being taken here with this "controversy" of expecting Kirchhoffian results from large systems. When I was a lad, it was first impressed upon us in Sophomore EE that any deviation in measurement from the corollaries of Kirchhoff were signs of:
1. Your mistake;
2. A system too large in terms of wavelength to be analyzed so;
3. Both 1. and 2.

Analog designers, fully expecting a continuum of results spanning from classic to truly exaggerated, can cope with this. For digital designers, this is a clear example of confounding expectations of a binary result.

73's
Richard Clark, KB7QHC

2461. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 17:39:42 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duv20u$m12$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63422

"Richard Harrison" wrote
> Kraus characterizes inductors as helices. At one extreme they are
> stretched into straifht wires. At the other they collapse into
single
> loops.

==========

See program SOLNOID3 which calculates inductance of 1-turn loops, via multi-turn solenoids, to straight wires. With many other parameters of interest such as temperature rise for a given applied voltage, as in tank circuits and antenna loading coils.

So far as the author is aware there are no bugs in it. It's been around and much used for a few years.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

2462. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 18:00:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <EeEQf.29723$2O6.25660@newssvr12.news.prodigy.com>
Source record: 63423

John Popelish wrote:
> Predictions are little more than an ego trip, unless they are a test of
> a specific calculation method used for the prediction. But I was
> willing to wait for the test result and an after the fact description of
> the test method, to see what understanding might be teased out that
> combination of facts. The discussion might also have lead to a better
> way to perform such a test.

Still might. But I suspect the test results are already available
and just being withheld because someone doesn't like the results.
I'm a skeptical, suspicious type. I'm sure Tom wishes he had not
published his "-60 to -70 degree phase shift" results.
--
73, Cecil http://www.qsl.net/w5dxp

2463. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 18:18:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <NvEQf.29864$2O6.1638@newssvr12.news.prodigy.com>
Source record: 63424

Reg Edwards wrote:
> See program SOLNOID3 which calculates inductance of 1-turn loops, via
> multi-turn solenoids, to straight wires.

Reg, at http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)
gives the helical wave guide effective characteristic impedance.
Unfortunately, that web site is not responding at the moment (probably
because all the gurus here are accessing it wondering what they did
wrong.) :-) But, when the page becomes available would you take a look
at that equation? It goes something like this:

Zc = 60/Vf[I0(tau*alpha)*K0(tau*alpha)]

Is tau the transmission coefficient and alpha the attenuation constant?
Are I0 and K0 functions? Have you ever seen this equation before?

Also, Fig. 1 is a graph of velocity factor vs the diameter of the helix
divided by the wavelength for 10k, 5k, 2.5k, 1k, 500, 250, 100, and 50
turns per wavelength. It says: "Tightly wound coils are slow wave
structures." My 75m bugcatcher coil appears to fall nicely into the
catagory of a "tightly wound slow wave structure".
--
73, Cecil http://www.qsl.net/w5dxp

2464. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 18:49:56 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <44131BE0.B02A5333@shaw.ca>
Source record: 63425

"Dick, AA5VU" wrote:

>
> Late yesterday afternoon I decided to try the two alligator clips and
> some wire to run a test to see what would happen. Sounds easy but I
> made it very hard.
>
> Dick AA5VU (red-faced)

Atta Ham! :-) I'm pretty sure we've all done things like that! At
least I have -- more than once too!

Irv VE6BP
--

Diagnosed Type II Diabetes March 5 2001
Beating it with diet and exercise!
297/215/210 (to be revised lower)
58"/43"(!)/44" (already lower too!)

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

2465. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 18:55:02 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duv6e6$5md$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63326

The phase shift along a coil, an inductor, considered as a
transmission line, obviously depends on what it is terminated with.
It much depends on frequency.

In the present context, the termination of the coil is the input
impedance of another transmission line consisting of a rod or length
of wire, or a capacitance hat, forming the remainder of the antenna.

To the participants to this discussion, just think about it. The
behaviour of the coil depends on the behaviour of the rest of the
system.

On the other hand, a coil has certain fixed parameters which are
independent of the rest of the system.

It is a good idea to restrict analysis to the resonant frequency of
the system. It assists with simpification and understanding of it.

Tonight, I've switched to Western Austalian dry white.

Reg.

2466. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 19:14:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <xkFQf.30328$2O6.27046@newssvr12.news.prodigy.com>
Source record: 63327

w8ji@akorn.net wrote:

> Cecil,
> You have consistently disagreed with me when I said time delay through
> an inductor with tight mutual coupling from turn-to-turn is somewhat
> close to light speed over the physical length of the inductor, rather
> than the time it takes current to wind its way around through the
> copper.

I think I have figured out your misunderstanding here, Tom.
I *never* said the current winds its way around through the
copper. That was just another one of your strawmen that
I don't believe and have never believed. I have offered you
$100 if you can find where I ever said that. Would it make
any difference if I offered you $1000?

The effect of a velocity factor of 0.015 may seem to you
to be the same as "current winds its way around through
the copper" but I assure you, if you understood the wave
model of distributed network analysis, you would understand
why that is not the case.

I can fully understand why someone so emotionally
attached to the lumped-circuit model would assume
"current winding its way around through the copper"
but that is simply a misconception of yours.
Distributed networks are not nearly as simple-minded
as your lumped-circuits.

A helical coil structure with a VF of 0.015 *is what it
is*. Waves propagate at 0.015 the speed of light and
that's quite a delay through a relatively physically
short coil. If the coil is 6.5 inches long, as is my
75m bugcatcher coil, it occupies an electrical length
of 6.5"/.015 = 433" = 36 feet. The fact that it consumes
42 feet of wire is just a coincidence. The 6.5" coil
replaces aabout 36' of straight wire. From those facts,
you can calculate the number of degrees or percentage
of a wavelength.

Shirley, you understand that 1/4WL of a transmission
line with a 0.9 velocity factor is longer than 1/4WL
of line with a 0.66 velocity factor. That's why coax
stubs are shorter than 450 ohm ladder-line stubs. (I
feel like I'm doing a EE323 tutorial here).

What is it about a VF of 0.015 that you don't understand?
All it means is that RF through the coil is traveling
at 1/67 the speed of light. If you understand that
RF through RG-8 is traveling at 2/3 the speed of light,
why can't you understand "slow wave coils"?
--
73, Cecil http://www.qsl.net/w5dxp

2467. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 19:21:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <UqFQf.30386$2O6.12724@newssvr12.news.prodigy.com>
Source record: 63328

Reg Edwards wrote:
> To the participants to this discussion, just think about it. The
> behaviour of the coil depends on the behaviour of the rest of the
> system.

i.e. the behavior of the coil depends upon the reflected
energy in the system delivered back to the coil by other
elements in the system. That's basically why the lumped-
constant model fails.

> Tonight, I've switched to Western Austalian dry white.

"Austalian"? You've got two choices, Reg. Sober up or
have another. I would have another. :-) But please note,
you have given up a lot of antioxidants from the reds.
--
73, Cecil http://www.qsl.net/w5dxp

2468. Re: Dipole Extension

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 19:27:38 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <duv8ba$q6v$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63329

"aRKay" wrote
> You are correct but many of us tend to get obsessive about SWR.

==========

Quite right too!

Extremely few SWR meters indicate SWR on the transmission line from transmitter to the antenna where it really might matter but seldom doesn't.

All that is indicated is whether or not the transmitter is loaded with its correct impedance. Admittedly, a useful indication.

The learned discussions on the subject of interpretting SWR meter redings are usually so much baffle-gab.

Reg.

2469. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 20:51:54 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1216e3dskf72sa3@corp.supernews.com>
Source record: 63330

John Popelish wrote:
> Cecil Moore wrote:
>>
>> . . . Do you think W7EL would
>> ever make a prediction based on the meager amount of
>> information provided? :-) A few years ago he provided some
>> information but kept changing parameters daily until I got
>> tired and withdrew my estimate. But it turned out in the
>> end that I was pretty close.

That's entirely untrue. The record is readily available via groups.google.com for anyone interested in seeing what really happened. The thread was "Current in antenna loading coils controversy (long)", in November 2003.

> . . .

Roy Lewallen, W7EL

2470. Re: Dipole Extension (done)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 21:00:00 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-DAAAA6.15000011032006@newsclstr02.news.prodigy.com>
Source record: 63331

In article
<aa5vuNOSPAM-0225C7.04241211032006@newsclstr02.news.prodigy.com>,
"Dick, AA5VU" <aa5vuNOSPAM@arrl.net> wrote:

> In article <T8mQf.913$_f4.191@trnddc03>,
> "Dale Parfitt" <par@parelectronics.com> wrote:
>
> > I am not familair with this antenna, but if it has a choke/trap for 40M,
> > just add a foot of wire on the side of the choke/trap that is closest to
> > the
> > center insulator- let it hang down and dangle. You can clip it on as one
> > poster said- this is a high Z point and contact resistance is a non-issue.
> > But as others have said, the on-air difference is zero.
> >
> > Dale W4OP
>
> Late yesterday afternoon I decided to try the two alligator clips and
> some wire to run a test to see what would happen. Sounds easy but I
> made it very hard. To make a long shaggy-dog story short I added the
> wire and the SWR went out of sight. It acted like a dead short. I then
> lowered he antenna and cut the wire in half and it was still terrible.
> I then trashed he alligator clips and wire to and it was still
> terrible. After two hours of screwing around, I found some dummy (me)
> had the coax switch on the old Ringo Ranger rather than the W9INN
> antenna. By this time it was too dark to mess with anything.
>
> Going to start over when the sun comes up but this time I plan to ditch
> the alligator clips and attach a one foot wire using the connection nuts
> on the coil/trap or whatever w9inn used to call that thing between the
> 40 and 80 wires and will have the coax switch on the right antenna this
> time.
>
> Dick AA5VU (red-faced)

The antenna now lives! This morning I added a 14-inch wire to each leg
by attaching it to nut on the 40 meter side of coil/trap thing. The
experiment worked so I know how much I need to cut and solder in on he
40 meter dipole. I may run with the 14-inch wire whips for a week or so
and see what happens. The following is a list of the before and after
SWR readings. The 14" addition did just what the book said it would do.
I now have the 40 meter resonant point pretty close to where I want it
for PSK and RTTY but can still use the phone band as well.

7.600 1.8
7.500 1.4 2.0

7.400 1.1 1.8
7.300 1.1 1.3
7.200 1.4 1.1
7.100 1.7 1.1
7.050 1.8 1.3
7.000 1.8 1.4
6.900 2.0 1.6
6.800 - 2.0

The 50 MHz, 18 MHz, 24 MHz and 3.9 MHz readings did not change and they are all 1.1 or very close.

Bill, W9INN, will be missed. He was a great guy and his antennas were excellent. Too bad nobody picked up the ball from him. My old 40/80 W9INN has been modified to add WARC bands but still works great after 20 years of use and abuse. The traps are still in good shape.

TNX for reading

73, Dick AA5VU

2471. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 21:06:32 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1216ev1fa39ak9a@corp.supernews.com>
Source record: 63332

Frank's wrote:
> Thanks for your comments Tom, and you raise some valid points. Jerry Sevick
> "The Short Vertical Antenna and Ground Radial", pp 25, 26, does state that
> the procedure is accurate to within 25%, but does not provide any
> independant verification of these claims. The method was developed by M. C.
> Waltz at Bell Labs, but, again, nothing was ever published.
>
> It would be interesting to develop a more accurate method. While my
> measurement of 52 mS/m may not be very realistic it is evident that this
> region does have a very high soil conductivity. Ground-wave daylight
> reception of AM broadcast stations, with strong signals, at well over 300
> miles is possible.

There are more accurate methods to calculate ground conductivity, but what's the point? The skin depth in soil is on the order of 10 or 20 feet, depending on the frequency and soil quality. This means that substantial current is flowing down to a few times this depth. Certainly where I live, and I'd bet that in most locations, the conductivity is far from uniform. So in order to know the conductivity of the soil which is carrying current, you'd need to measure it down to several tens of feet.

Once you had that data, what would you do with it? Currently available modeling programs assume homogeneous ground to an infinite depth. So you'd have to choose some single value from among your measurements if your objective is to get better accuracy from a program. But there's no evidence that a homogeneous ground with any single value of conductivity will behave the same as a stratified ground.

So having even an extremely accurate measure of surface conductivity at a particular radio frequency (and it does vary with frequency) still gives you much too little information to build even a crudely accurate model of the actual ground in which the current is flowing.

Roy Lewallen, W7EL

2472. KLM C-3

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 21:16:11 UTC
From: Win <w0lz@winlyn.us>
Message-ID: <igf612t34jbsjdujopn1qsk05hv2qgfoi7@4ax.com>
Source record: 63333

I have a freind, a new ham, that was given a 2 meter vetically and horixontally polorized antenna from an estate. The antenna is marked KLM C-3. It had two 300 ohm driven elements. It also has a switching circuit that apparently attaches to the feed points.

Can anyone that is familure with this antenna give me information on how to use this circuit to feed tha antenna.

Win, w0lz

2473. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 21:38:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <LrHQf.206$tN3.53@newssvr27.news.prodigy.net>
Source record: 63334

Roy Lewallen wrote:
> John Popelish wrote:
>
>> Cecil Moore wrote:
>>> . . . Do you think W7EL would
>>> ever make a prediction based on the meager amount of
>>> information provided? :-) A few years ago he provided some
>>> information but kept changing parameters daily until I got
>>> tired and withdrew my estimate. But it turned out in the
>>> end that I was pretty close.
>
> The record is readily available via
> groups.google.com for anyone interested in seeing what really happened.
> The thread was "Current in antenna loading coils controversy (long)", in
> November 2003.

Yes, indeed, it is, Roy. That's also my reference. And I have
learned a lot of the details underlying your myths since then.
--
73, Cecil http://www.qsl.net/w5dxp

2474. Re: Dipole Extension (done)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 21:55:37 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <nnh612t9v457ck93ujb2fsou2tnrl5848u@4ax.com>
Source record: 63335

I am glad to hear it now meets your expectations. I still have not
found a diagram of your antenna, but I did find this very good artical
on SWR:
http://www.qsl.net/k2hq/swr.htm#PART%201

On Sat, 11 Mar 2006 21:00:00 GMT, "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
wrote:

>
>The antenna now lives! This morning I added a 14-inch wire to each leg
>by attaching it to nut on the 40 meter side of coil/trap thing. The
>experiment worked so I know how much I need to cut and solder in on he
>40 meter dipole. I may run with the 14-inch wire whips for a week or so
>and see what happens. The following is a list of the before and after
>SWR readings. The 14" addition did just what the book said it would do.
>I now have the 40 meter resonant point pretty close to where I want it
>for PSK and RTTY but can still use the phone band as well.
>
>7.600 1.8
>7.500 1.4 2.0
>7.400 1.1 1.8
>7.300 1.1 1.3
>7.200 1.4 1.1
>7.100 1.7 1.1
>7.050 1.8 1.3
>7.000 1.8 1.4
>6.900 2.0 1.6
>6.800 - 2.0
>
>The 50 MHz, 18 MHz, 24 MHz and 3.9 MHz readings did not change and
>they are all 1.1 or very close.
>
>Bill, W9INN, will be missed. He was a great guy and his antennas were
>excellent. Too bad nobody picked up the ball from him. My old 40/80
>W9INN has been modified to add WARC bands but still works great after 20
>years of use and abuse. The traps are still in good shape.
>
>TNX for reading
>
>73, Dick AA5VU
John Ferrell W8CCW

2475. Re: Dipole Extension (done)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 22:16:30 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <2%HQf.12296$wH5.7544@trnddc02>
Source record: 63336

>>
>> > I am not familair with this antenna, but if it has a choke/trap for
>> > 40M,
>> > just add a foot of wire on the side of the choke/trap that is closest
>> > to
>> > the
>> > center insulator- let it hang down and dangle. You can clip it on as
>> > one
>> > poster said- this is a high Z point and contact resistance is a
>> > non-issue.
>> > But as others have said, the on-air difference is zero.
>> >
>> > Dale W4OP
>>
>
> The antenna now lives! This morning I added a 14-inch wire to each leg
> by attaching it to nut on the 40 meter side of coil/trap thing. The
> experiment worked so I know how much I need to cut and solder in on he
> 40 meter dipole. I may run with the 14-inch wire whips for a week or so
> and see what happens. The following is a list of the before and after
> SWR readings. The 14" addition did just what the book said it would do.
> I now have the 40 meter resonant point pretty close to where I want it
> for PSK and RTTY but can still use the phone band as well.
>
Absolutely zero reason to place that wire in series with the dipole- in fact
it will not yield the same results if you do so- you will end up having to
redo the length. It will also mechanically weaken the antenna and also
change 80M resonance. There is no current in that short stub-i.e. no effect
on radiation. Let it dangle.
Dale W4OP

2476. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 22:20:35 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <l2vbe3-ekt.ln1@p400bob.personal.cox.net>
Source record: 63338

Hi Roy..

And I only wanted a simple answer. <sigh> Was just trying to limit some
of the variables and learn some at the same time!

The FCC map says its roughly 8 mS/M here... That will do..

Cheers Bob VK2YQA

Roy Lewallen wrote:
>
> There are more accurate methods to calculate ground conductivity, but
> what's the point? The skin depth in soil is on the order of 10 or 20
> feet, depending on the frequency and soil quality. This means that

2477. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 22:22:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <X4IQf.31896$2O6.16344@newssvr12.news.prodigy.com>
Source record: 63337

Roy Lewallen wrote:
> The record is readily available via
> groups.google.com for anyone interested in seeing what really happened.
> The thread was "Current in antenna loading coils controversy (long)", in
> November 2003.

At that time in 2003, I was as naive as Galileo in front
of the court run by religious priests.

Any time you feel like apologizing for your questionable
behavior, all I ask is that you retract that single
"gobbledygook" statement that you made against my use of
the rules of the distributed-network model and laws of
reflection physics which are both a subset of Maxwell's
equations.
--
73, Cecil http://www.qsl.net/w5dxp

2478. Re: KLM C-3

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 22:29:07 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <livbe3-gkt.ln1@p400bob.personal.cox.net>
Source record: 63339

Hi Win

Without actually looking up the model/manufacturer I'd say it is an
antenna meant for circular polarised satellite work. The switching
system probably changes LHCP RHCP but may also have a planar (V or H) mode.

Now doing a websearch;

KLM Antennas - Closed factory - Out of Business the last day of Oct.
1999 - See M2 inc have KLM spares

This may be it;

http://msuarc.egr.msu.edu/retrofit/klmspecs.html

Cheers Bob VK2YQA

Win wrote:
>
> I have a freind, a new ham, that was given a 2 meter vetically and
> horixontally polorized antenna from an estate. The antenna is marked
> KLM C-3. It had two 300 ohm driven elements. It also has a switching
> circuit that apparently attaches to the feed points.
>
> Can anyone that is familure with this antenna give me information on
> how to use this circuit to feed tha antenna.
>
> Win, w0lz

2479. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 23:18:50 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <3km6129fovbk7bi68e276bgg56ivv66ngr@4ax.com>
Source record: 63340

On Sat, 11 Mar 2006 22:22:47 GMT, Cecil Moore <mycall@arrl.net> wrote:
>I was as naive as Galileo in front of the court run by religious priests.
Has Cecileo been dropping his balls off of the Tower of Pisa again?

2480. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-11 23:30:51 UTC
From: w8ji@akorn.net
Message-ID: <1142119851.274292.127420@j33g2000cwa.googlegroups.com>
Source record: 63341
Body handling: HTML body converted to readable text

> > Cecil Moore wrote:
> >> . . . Do you think W7EL would
> >> ever make a prediction based on the meager amount of
> >> information provided? :-) A few years ago he provided some
> >> information but kept changing parameters daily until I got
> >> tired and withdrew my estimate. But it turned out in the
> >> end that I was pretty close.
W7EL wrote:
> That's entirely untrue. The record is readily available via
> groups.google.com for anyone interested in seeing what really happened.
> The thread was "Current in antenna loading coils controversy (long)", in
> November 2003.
> Roy Lewallen, W7EL
I'm also a victim of Cecil's twisted reality Roy.
I offered to make a measurement if Cecil would even loosely predict
results and tell everyone in advance what they would mean. When he
didn't
respond, I made the measurements anyway.
Time delay measurements of current at each terminal of a "bug-catcher
style" loading coil are now at:
http://www.w8ji.com/inductor_current_time_delay.htm
Cecil is also re-writing what I said on QRZ. If anyone reads back
through
his posts on this list, they will eventually find a post where he
acknowledges a phase measurement I posted on QRZ was in voltage
across the source compared to voltage across a load resistance.
My response was on Mar 9 2006 at 10:03 PM
When I measured CURRENT at each end of the inductor (in that case the
inductor was a 1-1/4" long iron core 100uH choke), current had no
detectable amplitude or phase shift. Voltage from the generator was not

in phase with current because of the inductive reactance, but current
had the same relationship at each end of the choke.
Of course Cecil wrote that off as "measuring standing wave current that

is current that doesn't flow", and then succeeded in driving off
someone who was trying to straighten him out on that. All of that is
also in this thread for anyone to read. The exact text is:

2481. Re: Vertical vs Horizontal shootout part 1.5

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 00:02:50 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <XP2dnTNOfa62-I7ZnZ2dnUVZ_t2dnZ2d@adelphia.com>
Source record: 63342

Okay, all.

I rand a multi-band check on my s-meter.

The results are: (with the previous 80 meter test included.

80 meter

+20 start
S9 -18 db
S8 -23 db
S7 -26 db
S6 -29 db
S5 -32 db
S4 -35 db
S3 -37 db
S2 -39 db
S1 -41 db

40 meter

+20 start

S9 -18 db
S8 -22 db
S7 -25 db
S6 -28 db
S5 -31 db
S4 -34 db
S3 -36.5 db
S2 -38.5 db
S1 -41 db

30 meter

+20 start

S9 -19 db
S8 -23 db
S7 -27 db
S6 -31 db
S5 -34 db
S4 -36 db
S3 -39 db
S2 -41 db
S1 -43 db

20 meter

+20 start

S9 -19 db
S8 -22 db
S7 -26 db
S6 -30 db
S5 -34 db
S3 -38 db
S2 -41 db
S1 -50 db

There is no doubt that the readings are different, and significantly in some cases. I will give a calibration of the meter for each band that I do. Lesson learned here is that the meter should be calibrated to do this test, IMO. Yes, it is true that on any given band the readings are going to be relative to each other. But it is inevitable that questions will arise about the relative efficiency of my antennas by band, as both are multi-band antennas.

Part 2 to follow soon.......

-73 de Mike KB3EIA -

2482. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 00:13:21 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <BIJQf.32808$2O6.10375@newssvr12.news.prodigy.com>
Source record: 63343

Cecil Moore wrote:
> Roy Lewallen wrote:
>
>> The record is readily available via groups.google.com for anyone
>> interested in seeing what really happened. The thread was "Current in
>> antenna loading coils controversy (long)", in November 2003.
>
>
> At that time in 2003, I was as naive as Galileo in front
> of the court run by religious priests.
>
> Any time you feel like apologizing for your questionable
> behavior, all I ask is that you retract that single
> "gobbledygook" statement that you made against my use of
> the rules of the distributed-network model and laws of
> reflection physics which are both a subset of Maxwell's
> equations.

Cecil, have you ever read the book _Don Quixote_, by Cervantes?
There's a character in there you remind me of.
73,
Tom Donaly, KA6RUH

2483. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 00:34:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <K0KQf.75236$PL5.25532@newssvr11.news.prodigy.com>
Source record: 63344

w8ji@akorn.net wrote:
> I offered to make a measurement if he would even loosely predict
> results and tell us in advance what they would mean. When he didn't
> respond, I made the measurements anyway.

Huh? I predicted 14 degrees at 1.9 MHz and 28 degrees at 3.8 MHz
based on Reg's assertion that the coil was self-resonant at 12 MHz.
Once you know the self-resonant frequency, the VF can be calculated.
From there, one can calculate a ballpark delay through the coil.
Your 3 nS measurement seems outside of all possiblity.

This is really simple physics, Tom. If your measurements disagree
with the boundary conditions set by the laws of distributed-
network physics then something is wrong with your measurements.

Let's take a closer look. If the delay through the coil is indeed
3 nS at 4 MHz, the phase shift through the coil at 4 MHz is 4.32
degrees. For a self-resonant phase shift of 90 degrees, the self-
resonant frequency of the coil has to be near (90/4.32)4 MHz =
83 MHz. Now if the self-resonant frequency is really 83 MHz, all
is well, and your measurements agree with distributed network
theory.

But, Tom, don't you think you are insulting our intelligence when
your 100uH coil must have a self-resonant frequency of 83 MHz and
a velocity factor of 0.28 for your measurements to be valid? My
75m bugcatcher coil has a VF of 0.015. Why is your coil 20 times
better than my bugcatcher?

And I have that same coil with 68.5 turns but it is self-resonant
at 57 MHz. How do you explain 2/3 of the number of turns being
self-resonant 25 MHz lower? If you cannot, something is wrong with
your measurements. Don't you care that your 3 nS results are so
outside the bounds of possibility as to be laughable?

Please measure the self-resonant frequency of that coil, Tom.
If it's not 83 MHz, your measurements are bogus. I suggest the
self-resonant frequency is actually lower than the 12 MHz
predicted by Reg.

Incidentally, the IEEE would surely be interested in your ability
to violate the distributed-network laws of physics. Maybe you
can talk them into replacing that body of physics with your pet
lumped-circuit model. Good luck on that one.

3 nS delay through a 100 uH coil???? That would be funny if it
was April First. That's why I requested that you describe your

test setup which you refused to do.
--
73, Cecil http://www.qsl.net/w5dxp

2484. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 00:36:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <52KQf.75237$PL5.1765@newssvr11.news.prodigy.com>
Source record: 63345

Richard Clark wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>I was as naive as Galileo in front of the court run by religious priests.
>
> Has Cecileo been dropping his balls off of the Tower of Pisa again?

:-) I dropped them off the wrong side and rewrote the law of gravity.
--
73, Cecil http://www.qsl.net/w5dxp

2485. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 00:48:15 UTC
From: w8ji@akorn.net
Message-ID: <1142124494.851152.85460@j52g2000cwj.googlegroups.com>
Source record: 63346

All explainations of the time delay I measured and why it happens are
on my website.

http://www.w8ji.com/inductor_current_time_delay.htm

and

http://www.w8ji.com/mobile_and_loaded_antenna.htm

and associated links.

The self-resonant frequency of the inductor is shown by a large rise in
time delay. Cecil is now trying to rewrite the self-resonant frequency
of the inductor I tested by using his own seriously flawed theories,
but despite the fact it appears to be clearly shown in the network
analyzer data at about 16 MHz.

http://www.w8ji.com/images/Inductor/current-time-delay.jpg

Cecil's normal tactic is to change what other people say. To read a
history of the very same behavior with someone else please read:

http://www.w8ji.com/RRAA_post.htm

73 Tom

2486. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 01:27:17 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <441378f5$0$7335$39cecf19@news.twtelecom.net>
Source record: 63347

Richard Clark wrote:

> Analog designers, fully expecting a continuum of results spanning from
> classic to truly exaggerated, can cope with this. For digital
> designers, this is a clear example of confounding expectations of a
> binary result.
>
> 73's
> Richard Clark, KB7QHC

I've worked with a few digital designers. Many of them expect a unary
result.

tom
K0TAR

2487. Re: Dipole Extension (done)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 01:57:57 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-76F3DC.19575711032006@newsclstr02.news.prodigy.com>
Source record: 63348

In article <2%HQf.12296$wH5.7544@trnddc02>,
"Dale Parfitt" <par@parelectronics.com> wrote:

> Absolutely zero reason to place that wire in series with the dipole- in fact
> it will not yield the same results if you do so- you will end up having to
> redo the length. It will also mechanically weaken the antenna and also
> change 80M resonance. There is no current in that short stub-i.e. no effect
> on radiation. Let it dangle.
> Dale W4OP

Thanks..... going to let it dangle. Not hurting anything and it has a
good attachment.

2488. Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 02:04:52 UTC
From: "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
Message-ID: <aa5vuNOSPAM-2F4793.20045211032006@newsclstr02.news.prodigy.com>
Source record: 63349

In article <nnh612t9v457ck93ujb2fsou2tnrl5848u@4ax.com>,
John Ferrell <johnferrell@sprintmail.com> wrote:

> I am glad to hear it now meets your expectations. I still have not
> found a diagram of your antenna, but I did find this very good artical
> on SWR:
> http://www.qsl.net/k2hq/swr.htm#PART%201

John,

If you recall the old W9INN ads in QST you he has a 40/80 dipole. It
was full size 40 meter dipole with what I remember he called a resister
(that was really a coil) and about a 9 foot length of wire past the coil
for the 80 meter antenna. It was fed with coax to a center insulator.
Bill did not believe in baluns.

I modified the antenna by two sets of wires. One for 10 MHz and the
other for 18 MHz. The 18 MHz seems to be resonant for 6 meters and the
whole mess works on 24 MHz as well.

I did not see it on the K2HG web page

73, Dick AA5VU

2489. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 02:15:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <wvLQf.46028$F_3.1523@newssvr29.news.prodigy.net>
Source record: 63350

w8ji@akorn.net wrote:
> The self-resonant frequency of the inductor is shown by a large rise in
> time delay. Cecil is now trying to rewrite the self-resonant frequency
> of the inductor I tested by using his own seriously flawed theories,
> but despite the fact it appears to be clearly shown in the network
> analyzer data at about 16 MHz.

Well then, if 10" is 1/4WL at 16 MHz, its velocity factor is 0.054.
10" on 4 MHz with a VF of 0.054 is 0.063WL or 22.6 degrees. Why
didn't you measure 22.6 degrees or 15.7 nS of delay?

You measured 3 nS or 4.32 degrees of delay. Something is obviously
wrong. The VF couldn't change by a factor of 5 to 1 going from 16
MHz to 4 Mhz.

I think I know what happened. You forgot and left the test wire
attached in parallel with the test coil. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2490. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 02:29:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zILQf.46032$F_3.29218@newssvr29.news.prodigy.net>
Source record: 63351

Tom Donaly wrote:
> Cecil, have you ever read the book _Don Quixote_, by Cervantes?
> There's a character in there you remind me of.

Tom, please don't tell me that you also believe that a distributed-
network analysis using wave reflection theory is "gobbledygook".
--
73, Cecil http://www.qsl.net/w5dxp

2491. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 02:35:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <XNLQf.46034$F_3.45259@newssvr29.news.prodigy.net>
Source record: 63352

Cecil Moore wrote:

> w8ji@akorn.net wrote:
>> The self-resonant frequency of the inductor is shown by a large rise in
>> time delay. Cecil is now trying to rewrite the self-resonant frequency
>> of the inductor I tested by using his own seriously flawed theories,
>> but despite the fact it appears to be clearly shown in the network
>> analyzer data at about 16 MHz.

In case my previous reply was confusing to some people let's
do it with a piece of transmission line.

We have a piece of transmission line that we measure to be
1/4 wavelength on 16 MHz. That's easily done with an MFJ-
259B. We hand it over to Tom who takes it and measures a
3 nS delay through it at 4 MHz. What's wrong with this
picture?
--
73, Cecil http://www.qsl.net/w5dxp

2492. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 03:14:48 UTC
From: nm5k@wt.net
Message-ID: <1142133288.354940.43290@j33g2000cwa.googlegroups.com>
Source record: 63354

"A small granule of truth." A factoid is to insight, as a small hard turd is to a bowel movement. ,.....

Sounds like one of those green lizard geico commercials... I can just imagine the sound of that statement with that little green lizard aussie
voice he has...
MK

2493. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 03:16:59 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <PqidnXd4fLHADI7ZRVn-jQ@adelphia.com>
Source record: 63353

w8ji@akorn.net wrote:
(snip)
> Time delay measurements of current at each terminal of a "bug-catcher
> style" loading coil are now at:
> http://www.w8ji.com/inductor_current_time_delay.htm

Thank you for posting the test results. But I see no information that
would allow me to reproduce it. What test equipment and what
measurement set-up was used to produce these results?

2494. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 03:36:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pHMQf.34513$2O6.18044@newssvr12.news.prodigy.com>
Source record: 63355

w8ji@akorn.net wrote:
> Cecil's normal tactic is to change what other people say.

I could never bring myself to cut and paste and mix and match
numerous postings over many hours to try to twist what someone
has said, like you did with my postings. I could ask, Tom are
you a criminal?, and wait for the next time you posted a yes
to some other question. Cut and paste those two things together
and I would be using W8JI's arguing technique. But you know
what you are, Tom, without me having to point it out.

> To read a
> history of the very same behavior with someone else please read:
>
> http://www.w8ji.com/RRAA_post.htm

That is really funny, Tom. You are defending the lumped-constant
model, known to fail in a standing wave environment, by measuring
standing wave current? You are really something else.
--
73, Cecil http://www.qsl.net/w5dxp

2495. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 04:31:15 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <nuNQf.17246$Cp4.11649@edtnps90>
Source record: 63356

> There are more accurate methods to calculate ground conductivity, but
> what's the point? The skin depth in soil is on the order of 10 or 20 feet,
> depending on the frequency and soil quality. This means that substantial
> current is flowing down to a few times this depth. Certainly where I live,
> and I'd bet that in most locations, the conductivity is far from uniform.
> So in order to know the conductivity of the soil which is carrying
> current, you'd need to measure it down to several tens of feet.
>
> Once you had that data, what would you do with it? Currently available
> modeling programs assume homogeneous ground to an infinite depth. So you'd
> have to choose some single value from among your measurements if your
> objective is to get better accuracy from a program. But there's no
> evidence that a homogeneous ground with any single value of conductivity
> will behave the same as a stratified ground.
>
> So having even an extremely accurate measure of surface conductivity at a
> particular radio frequency (and it does vary with frequency) still gives
> you much too little information to build even a crudely accurate model of
> the actual ground in which the current is flowing.
>
> Roy Lewallen, W7EL

Certainly, all valid points. I was more interested in actually doing precise measurements, but considered it might improve my model accuracy. I even thought of digging a hole to see how the soil varied. Doubt I would have dug down 20 or 30 ft. Most of the ground here is clay, and then probably bedrock, at this elevation of just over 4,000 ft ASL. Ansoft's HFSS, or CST, could probably handle an accurate, stratified, ground model.

Frank

2496. Re: KLM C-3

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 04:39:03 UTC
From: Win <w0lz@winlyn.us>
Message-ID: <r397129ep5bviqga4c0326gmp4vffsa5be@4ax.com>
Source record: 63357

Thanks, Bob.

You got it right without looking at it. From your post I took the KLM
2m-14c number and found the manual on line. All is clear now.

Thanks, again.

Win, w0lz

>Hi Win
>
>Without actually looking up the model/manufacturer I'd say it is an
>antenna meant for circular polarised satellite work. The switching
>system probably changes LHCP RHCP but may also have a planar (V or H) mode.
>
>Now doing a websearch;
>
>KLM Antennas - Closed factory - Out of Business the last day of Oct.
>1999 - See M2 inc have KLM spares
>
>This may be it;
>
>http://msuarc.egr.msu.edu/retrofit/klmspecs.html
>
>Cheers Bob VK2YQA
>
>Win wrote:
>>
>> I have a freind, a new ham, that was given a 2 meter vetically and
>> horixontally polorized antenna from an estate. The antenna is marked
>> KLM C-3. It had two 300 ohm driven elements. It also has a switching
>> circuit that apparently attaches to the feed points.
>>
>> Can anyone that is familure with this antenna give me information on
>> how to use this circuit to feed tha antenna.
>>
>> Win, w0lz

2497. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 04:56:57 UTC
From: jawod <jawod@fuse.net>
Message-ID: <4413AA19.7090101@fuse.net>
Source record: 63358

jawod wrote:
> I know this has been addressed on the group before but I remain confused.
>
> I will string a dipole in the trees. The coax shield will be earth
> grounded, as well as the balun and lightening arrestor.
>
> Now, in the 2nd floor shack, I've read that running a ground line from
> equipment 15 feet or more (in this case) to an earth ground will bring
> RF into the shack and be a potent source for TVI, etc.
>
> My choice, then, is to use the ground on the mains.
>
> Given that the shield is earth grounded on the antenna and the equipment
> is grounded to the mains, isn't this a good scenario for ground loop?
>
> Seems like a catch-22.
>
> My own gut says safety first, lower risk of RF issues after-the-fact by
> ? what ?
>
> I remember suggestions of coiling the ground wire in an RF choke,
> multiple ground lines of various lenghts to mess with harmonics. Ferrite
> beads? Chicken blood and a black cat?
>
> John
Reading the two responses so far...I'll get my advice elsewhere.
Typical internet group response...mildly insulting and of no direct
value. I first have to know what ground means? Whatever.
Imaginary numbers apparently require imaginary minds.

2498. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 05:29:40 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1217ce8c8v1jpbe@corp.supernews.com>
Source record: 63359

Frank wrote:
>
> Certainly, all valid points. I was more interested in actually doing
> precise measurements, but considered it might improve my model accuracy. I
> even thought of digging a hole to see how the soil varied. Doubt I would
> have dug down 20 or 30 ft. Most of the ground here is clay, and then
> probably bedrock, at this elevation of just over 4,000 ft ASL. Ansoft's
> HFSS, or CST, could probably handle an accurate, stratified, ground model.

Do a web search for "OWL" (qualifying it with ground conductivity-related terms to cut down the references to the bird and other contexts). I believe it stands for "open wire line", and the last I heard, was the standard way of measuring RF ground conductivity. It involves a buried open wire line, but that's about all I know about it.

There's certainly nothing wrong with learning to measure ground characteristics as an educational process. No matter what seemingly useless learning exercise I undertake, I ultimately learn many other things from it. By all means, go for it.

I'd love to see some results from one of the good field solving programs for stratified grounds, even something contrived, and even a simple vertical with buried or elevated ground system. What I'd like to know is whether there really is a single value you could assign to a single homogeneous ground and get the same results. I suspect not, but have no proof one way or the other.

Roy Lewallen, W7EL

2499. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 07:34:03 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <1bj7129btemua297vutapmnrhc1kn4l73f@4ax.com>
Source record: 63360

On Sun, 12 Mar 2006 02:29:51 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Tom Donaly wrote:
>> Cecil, have you ever read the book _Don Quixote_, by Cervantes?
>> There's a character in there you remind me of.
>
>Tom, please don't tell me that you also believe that a distributed-
>network analysis using wave reflection theory is "gobbledygook".

Hmm, Tom, let me guess - Dulcinea. The object of Quixote's attention
who never appears, but is always dreamt about.

2500. Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 09:53:29 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv0r2p$4rv$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63361

I am not trolling.

What I want to know is the radiation resistance, referred to the base,
of a short vertical wire above a perfect ground, the current in the
wire being assumed uniformly distributed.

The radiation resistance at the base is in the form of -

C * Square(Length / Lambda)

where Length is the physical length or height of the wire and Lambda
is the free-space wavelength.

What is the value of the constant C ?

Thank you.

Reg.

2501. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 10:13:41 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv0s8l$7kf$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63362

There's no need to ridicule measurements of soil resistivity just
because at a deeper layer there is a strata of different resistivity.

Any information is far better than complete ignorance.

Roy, you are just displaying your knowledge of geology.

Obviously, in practice it is the resistivity of the top layer which
predominates anyway.

Reg.

2502. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 10:55:32 UTC
From: w8ji@akorn.net
Message-ID: <1142160932.446842.283000@z34g2000cwc.googlegroups.com>
Source record: 63363

Reg Edwards wrote:
> There's no need to ridicule measurements of soil resistivity just
> because at a deeper layer there is a strata of different resistivity.
>
> Any information is far better than complete ignorance.
>
> Roy, you are just displaying your knowledge of geology.
>
> Obviously, in practice it is the resistivity of the top layer which
> predominates anyway.

The top layer here Reg is about one to six inches thick of rich pastorial soil. Below that is a layer of red clay with high iron content than can be a few feet or dozens of feet deep, and mixed or below that are various rocks. At places the rock is at the surface.

Measurements of a ground rod at various places on my farm show anything from 50 ohms to 500 ohms for a four foot rod measured against a reference antenna.

What value should I use Reg that would be better than a guess? In the areas where soil is very dry on top but has wet soil below rock, should I use the rock or the soil below it?

The fact is the method using multiple ground rods produces numbers that might have agreed with soil characteristics at the test site, but they produce some very wild numbers other places. I've seen that method produce conductivities of over 40mS/m where ground wave attenuation measurements have shown effective conductivity to be 10-15mS/m.

One fellow on 160 is particularly proud he has 45mS/m soil while his friend 100 miles away has 5mS/m. The only problem is no one can tell any difference in their signals, and there isn't any soil in that area that is over 20mS/m in the AM BC band.

I tghink the best way to estimate conductivity is to measure impedance of a dipole at low heights, and adjust the modeling program until impedances match. That certainly seems more reasonable than using 60 Hz AC on a short ground rod.

73 Tom

2503. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 11:16:40 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12180orrngmfn42@corp.supernews.com>
Source record: 63364

C = 160 * pi^2 ~ 1579.

This is exactly 4 times the radiation resistance of a short dipole with linear current distribution (i.e., one without a top hat), since the average current is twice the amount for the same radiated power.

Of course, this assumes an infinitely thin wire. Any real wire will have a higher radiation resistance than this.

Roy Lewallen, W7EL

Reg Edwards wrote:
> I am not trolling.
>
> What I want to know is the radiation resistance, referred to the base,
> of a short vertical wire above a perfect ground, the current in the
> wire being assumed uniformly distributed.
>
> The radiation resistance at the base is in the form of -
>
> C * Square(Length / Lambda)
>
> where Length is the physical length or height of the wire and Lambda
> is the free-space wavelength.
>
> What is the value of the constant C ?
>
> Thank you.
> ----
> Reg.
>
>

2504. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 11:28:03 UTC
From: w8ji@akorn.net
Message-ID: <1142162882.986318.46180@j52g2000cwj.googlegroups.com>
Source record: 63365

John Popelish wrote:
> w8ji@akorn.net wrote:
> (snip)
> > Time delay measurements of current at each terminal of a "bug-catcher
> > style" loading coil are now at:
> > http://www.w8ji.com/inductor_current_time_delay.htm
>
> Thank you for posting the test results. But I see no information that
> would allow me to reproduce it. What test equipment and what
> measurement set-up was used to produce these results?

I used a HP8753C network analyzer with small current transformers
similar to those used in directional couplers.

I calibrated using normal proceedures, and verified calibration by
inserting known transmission lines. For example when I substituted a
very short jumper, time delay was a few picoseconds. When I connected a
10 foot RG-8X jumper, time delay was about 13.5 nS.

For my phase angle measurements I used a dual channel HP vector
voltmeter with a HP generator, and similar current transformers when
measuring current.

I suppose most people would want to use a scope, but it would not be
near the accuracy of a dual channel vector voltmeter or especially a
vector network analyzer.

I have regular test fixture built on blank PC boards, since I do this
stuff every week for work. It does not "fit" a large coil well, so I
had to support the coil on two tall blocks of styrofoam and clip lead
to it.

I do have a large fixture that is a four foot PC board "box" with
various test jacks for connections to probes I use with larger
components, but my bench is to cluttered to fit it right now. In any
event a groundplane several inches away doesn't seem to bother things.
The only thing that moved when I moved the inductor close to the
fixture was the self-resonant frequency came down a few MHz. Time
delays did not change much unless I added an extra foot of clip lead,
then they increased about 1nS.

If it's useful, I guess I could add some more stuff. But probably
nothing extensive until after Dayton.

Since all of my data agrees with data made a few years ago by a
different person using a different method with different equipment, and
since it agrees with reference material I have, I don't see any reason

to treat it like cutting edge results. The physics is pretty solid, and the measurements agree.

73 Tom

2505. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 14:13:05 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <R%VQf.36840$2O6.35367@newssvr12.news.prodigy.com>
Source record: 63366

Reg Edwards wrote:
> I am not trolling.
>
> What I want to know is the radiation resistance, referred to the base,
> of a short vertical wire above a perfect ground, the current in the
> wire being assumed uniformly distributed.
>
> The radiation resistance at the base is in the form of -
>
> C * Square(Length / Lambda)
>
> where Length is the physical length or height of the wire and Lambda
> is the free-space wavelength.
>
> What is the value of the constant C ?

Reg, I believe it would be 10*pi^2 = 98.7, half of the
value of a small dipole. Balanis gives a dipole a very
thorough treatment and then says the monopole is half
of those values. His constant in the value of radiation
resistance for a short dipole is 20*pi^2. Kraus rounds
that constant off to 200. That value assumes the short
dipole is not infinitessimal and has a linear standing
wave current distribution. That constant doesn't seem
to need to be a very exact value.
--
73, Cecil http://www.qsl.net/w5dxp

2506. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 14:21:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <g7WQf.36842$2O6.20961@newssvr12.news.prodigy.com>
Source record: 63367

Roy Lewallen wrote:

> C = 160 * pi^2 ~ 1579.
>
> This is exactly 4 times the radiation resistance of a short dipole with
> linear current distribution (i.e., one without a top hat), since the
> average current is twice the amount for the same radiated power.

Since the resistance is inversely proportional to the current,
shouldn't you have divided by 4 instead of multiplying by 4?
--
73, Cecil http://www.qsl.net/w5dxp

2507. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 15:29:45 UTC
From: Dan Richardson <k6mhe>
Message-ID: <cff8129v3hi6mpmdbqcbeph602s2e39qdq@4ax.com>
Source record: 63368

On Sun, 12 Mar 2006 04:31:15 GMT, "Frank" <ve6cb@nospam.telus.net>
wrote:

> I was more interested in actually doing
>precise measurements, but considered it might improve my model accuracy. I
>even thought of digging a hole to see how the soil varied. Doubt I would
>have dug down 20 or 30 ft. Most of the ground here is clay, and then
>probably bedrock, at this elevation of just over 4,000 ft ASL. Ansoft's
>HFSS, or CST, could probably handle an accurate, stratified, ground model.

Rudy Severns, N6LF, has an interesting paper on making ground
measurements at:
http://www.antennasbyn6lf.com/files/ground_parameter_measurements_2.pdf

73,

Danny, K6MHE

2508. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 15:37:46 UTC
From: w8ji@akorn.net
Message-ID: <1142177866.861811.167300@z34g2000cwc.googlegroups.com>
Source record: 63369

Roy Lewallen wrote:
> C = 160 * pi^2 ~ 1579.
>
> This is exactly 4 times the radiation resistance of a short dipole with
> linear current distribution (i.e., one without a top hat), since the
> average current is twice the amount for the same radiated power.

Roy's formula above is correct. It is approximatey 1580 times the
square of effective height over the wavelength.

http://www.w8ji.com/radiat1.gif

http://www.w8ji.com/radiation_resistance.htm

Cecil's answer is not correct, but I'm sure you figured that out on
your own.

73 Tom

2509. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 15:50:46 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <qrXQf.38097$_S7.31125@newssvr14.news.prodigy.com>
Source record: 63370

w8ji@akorn.net wrote:
> When I connected a
> 10 foot RG-8X jumper, time delay was about 13.5 nS.

Let's take a look at the measurement results. That 13.5 nS delay through the coax would make that piece of RG-8X 1/4WL self-resonant at ~18.5 MHz, higher than the specified 16 MHz self-resonant frequency for the coil. So the laws of physics would dictate that the delay through the coil cannot be less than the delay through that piece of coax.

By definition, the physical meaning of that piece of coax being 1/4WL self-resonant at 18.5 MHz is that it takes 1/2 of a cycle in time for the forward wave to make a round trip to the end of the coax and back. 1/2WL of a cycle at 18.5 MHz is 27 nS. So the one-way delay through the coax is 1/2 of 27 or 13.5 nS.

By definition, the physical meaning of that 10" coil being 1/4WL self-resonant at 16 MHz is that it takes 1/2 of a cycle in time for the forward wave to make a round trip to the end of the coil and back. 1/2 of a cycle at 16 MHz is 31 nS. So the one-way delay through that coil is 1/2 of 31 or 16.5 nS.

The 1/4WL self-resonance point *IS* a measure of the delay through the coil just as it is a measure of the delay through a piece of transmission line.

If the coil is indeed 1/4WL self-resonant at 16 MHz, the one-way delay through the coil is *already known* to be 16.5 nS and that is what should have been measured. The fact that the *known value* of the delay through the coil was not measured runs up a red flag and is technical proof that something was amiss with the reported results.
--
73, Cecil http://www.qsl.net/w5dxp

2510. Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 15:59:56 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <I_ednZUTmPvh2InZRVn-pg@comcast.com>
Source record: 63371

Hello:

Anyone have any thoughts on (hopefully not experiences) whether putting a loop of, e.g. 1 foot in diameter,
on a coax run from an outdoor receive-only antenna has any merit as far as helping any emf lightning induced pulses from traveling into a house ?

Have heard about this, but it's hard to believe it would actually do anything in practice.
But,... ?

B.

2511. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 16:25:32 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0YXQf.38102$_S7.31145@newssvr14.news.prodigy.com>
Source record: 63372

w8ji@akorn.net wrote:
> Cecil's answer is not correct, but I'm sure you figured that out on
> your own.

Silly me, I was assuming the length of the monopole was
assumed to be 1/2 the length of the dipole.
--
73, Cecil http://www.qsl.net/w5dxp

2512. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 16:27:06 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <uZXQf.19954$M52.11928@edtnps89>
Source record: 63373

> Do a web search for "OWL" (qualifying it with ground conductivity-related
> terms to cut down the references to the bird and other contexts). I
> believe it stands for "open wire line", and the last I heard, was the
> standard way of measuring RF ground conductivity. It involves a buried
> open wire line, but that's about all I know about it.
>
> There's certainly nothing wrong with learning to measure ground
> characteristics as an educational process. No matter what seemingly
> useless learning exercise I undertake, I ultimately learn many other
> things from it. By all means, go for it.
>
> I'd love to see some results from one of the good field solving programs
> for stratified grounds, even something contrived, and even a simple
> vertical with buried or elevated ground system. What I'd like to know is
> whether there really is a single value you could assign to a single
> homogeneous ground and get the same results. I suspect not, but have no
> proof one way or the other.
>
> Roy Lewallen, W7EL

2513. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 16:49:01 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <1iYQf.19955$M52.13109@edtnps89>
Source record: 63374

> Do a web search for "OWL" (qualifying it with ground conductivity-related
> terms to cut down the references to the bird and other contexts). I
> believe it stands for "open wire line", and the last I heard, was the
> standard way of measuring RF ground conductivity. It involves a buried
> open wire line, but that's about all I know about it.
>
> There's certainly nothing wrong with learning to measure ground
> characteristics as an educational process. No matter what seemingly
> useless learning exercise I undertake, I ultimately learn many other
> things from it. By all means, go for it.
>
> I'd love to see some results from one of the good field solving programs
> for stratified grounds, even something contrived, and even a simple
> vertical with buried or elevated ground system. What I'd like to know is
> whether there really is a single value you could assign to a single
> homogeneous ground and get the same results. I suspect not, but have no
> proof one way or the other.
>
> Roy Lewallen, W7EL

The acronym "OWL", could also mean "Optimal Well Locator", which uses soil conductivity parameters. Dan Richardson's link to a paper by Rudy Severns: http://www.antennasbyn6lf.com/files/ground_parameter_measurements_2.pdf, does refer to the "Open Wire Line" method of measuring ground conductivity, and looks extremely interesting.

I have some minimal experience with HFSS (Also known as "Highly Frustrating Structure Simulator"), and could probably borrow the key to run it at home. Just the same, to model stratified ground you have to know what is underground, so you are back to large back yard excavations. I did notice, during the construction of this house, that the ground appeard to be 100% clay. I could not see any sign of bedrock.

Frank

2514. Re: Soil dielectric constand and conductivity for East Texas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 16:50:15 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <bjYQf.19956$M52.4888@edtnps89>
Source record: 63375

> Rudy Severns, N6LF, has an interesting paper on making ground
> measurements at:
> http://www.antennasbyn6lf.com/files/ground_parameter_measurements_2.pdf
>
> 73,
>
> Danny, K6MHE

Thanks for the reference Danny, it looks most interesting.

Frank

2515. Re: Concord,ca Police Department gives people tickets that have 820lbs. in a 1 ton pu truck

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 17:00:49 UTC
From: paul <pwryourpants@bluemail.ch>
Message-ID: <441453c3_2@news.bluewin.ch>
Source record: 63276
Cross-posted to: yu.oglasi,alt.internet.wireless,alt.cellular.cingular,rec.radio.amateur.antenna,alt.fifty-plus.friends

blackhca@hotmail.com wrote:
> Concord,ca Police Department Officer...

This is only the work of a troll, google >"Ron Turner" Concord Police<
and have a look at his mayhem.

2516. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 17:15:02 UTC
From: Bob <warthog9@pacbell.net>
Message-ID: <qGYQf.56054$Jd.34503@newssvr25.news.prodigy.net>
Source record: 63277

All the grounding info I have seen mentions no sharp bends, or any bends
if you can help it when bonding tower legs, etc to ground rods or ground
rings as it raises the impedance to the ground connection. I can see a
loop in the coax being beneficial as a supplement to a ground system,
but definitely not as the only precaution. It takes a well designed
lightning ground system to take a direct hit without any damage and I
have never seen one in a residential setting. I know several mountain
top repeater sites that take hits all the time with no apparent damage
but the entire site including the building, tower and electrical system
were designed from the start with lightning in mind.
Bob

Robert11 wrote:
> Hello:
>
> Anyone have any thoughts on (hopefully not experiences) whether putting a
> loop of, e.g. 1 foot in diameter,
> on a coax run from an outdoor receive-only antenna has any merit as far as
> helping any emf lightning induced pulses from traveling into a house ?
>
> Have heard about this, but it's hard to believe it would actually do
> anything in practice.
> But,... ?
>
> B.
>
>

2517. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 17:33:30 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <JIKdnbdXoomBx4nZnZ2dnUVZ_s6dnZ2d@adelphia.com>
Source record: 63278

w8ji@akorn.net wrote:
> John Popelish wrote:

>>Thank you for posting the test results. But I see no information that
>>would allow me to reproduce it. What test equipment and what
>>measurement set-up was used to produce these results?
>
>
> I used a HP8753C network analyzer with small current transformers
> similar to those used in directional couplers.
>
> I calibrated using normal proceedures, and verified calibration by
> inserting known transmission lines. For example when I substituted a
> very short jumper, time delay was a few picoseconds. When I connected a
> 10 foot RG-8X jumper, time delay was about 13.5 nS.
>
> For my phase angle measurements I used a dual channel HP vector
> voltmeter with a HP generator, and similar current transformers when
> measuring current.
>
> I suppose most people would want to use a scope, but it would not be
> near the accuracy of a dual channel vector voltmeter or especially a
> vector network analyzer.
>
> I have regular test fixture built on blank PC boards, since I do this
> stuff every week for work. It does not "fit" a large coil well, so I
> had to support the coil on two tall blocks of styrofoam and clip lead
> to it.
>
> I do have a large fixture that is a four foot PC board "box" with
> various test jacks for connections to probes I use with larger
> components, but my bench is to cluttered to fit it right now. In any
> event a groundplane several inches away doesn't seem to bother things.
> The only thing that moved when I moved the inductor close to the
> fixture was the self-resonant frequency came down a few MHz. Time
> delays did not change much unless I added an extra foot of clip lead,
> then they increased about 1nS.
>
> If it's useful, I guess I could add some more stuff. But probably
> nothing extensive until after Dayton.
(snip)

Thanks much. This helps me to visualize your method in a much more
complete way. I think a photo of the test apparatus would make a fine
addition to your web page documenting this result. I am especially

interested on how all this stuff was arrayed in space during the test.

2518. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 17:51:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <TcZQf.36890$2O6.3288@newssvr12.news.prodigy.com>
Source record: 63279

John Popelish wrote:
> Thanks much. This helps me to visualize your method in a much more
> complete way. I think a photo of the test apparatus would make a fine
> addition to your web page documenting this result. I am especially
> interested on how all this stuff was arrayed in space during the test.

John, would you agree or disagree with me that for
a well-designed coil, the delay through the coil is
fixed by the laws of physics as 1/4WL on the self-
resonant frequency?

If the self-resonant frequency of a well-designed coil
is measured at 16 MHz, then the delay through the coil
is 90 degrees at 16 MHz and therefore equal to 15.625 nS.

Using the self-resonant frequency to determine the
delay is an easy and accurate way to measure that
delay.

If the delay through the coil, measured at 1/4 the
self-resonant frequency, is appreciably different
from the 15.6 nS measured at 16m, then the measurement
contains an error.

Agree/disagree?
--
73, Cecil http://www.qsl.net/w5dxp

2519. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 18:13:30 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <exZQf.36893$2O6.35852@newssvr12.news.prodigy.com>
Source record: 63280

w8ji@akorn.net wrote:
> Since all of my data agrees with data made a few years ago by a
> different person using a different method with different equipment, and
> since it agrees with reference material I have, I don't see any reason
> to treat it like cutting edge results.

You've probably hit the nail right on the head there,
Tom. If your results agree with Roy's then you were
again more than likely measuring standing-wave current
and therefore gained nothing by making those measurements.

How do you explain a well-designed coil exhibiting a
measured delay of 15.6 nS at 16 MHz and a measured
delay of 3 nS at 4 MHz? Don't you realize that is an
impossibility according to the laws of physics? If
the coil is well-designed at 16 MHz, it would also
be well-designed at 4 MHz and exhibit very close
to the same delay at both of those frequencies.
Do you really think the delay changed by 81% between
those two frequencies?

Build yourself an SWR meter calibrated for the Z0
of that coil. Measure the SWR in your coil circuit.
I'll bet it will be nearly infinite. Seems you are
guilty of presupposing the proof again.
--
73, Cecil http://www.qsl.net/w5dxp

2520. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 18:14:43 UTC
From: richardharrison@webtv.net
Message-ID: <23728-44146513-657@storefull-3254.bay.webtv.net>
Source record: 63281

Reg wrote:
"What is the value of the constant C?"

395

It is found on page 137 of Kraus` 1950 edition of "Antennas".

Best regards, Richard Harrison, KB5WZI

2521. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 19:04:17 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <t7s8129il6kurgenj4tu5l687k89pa49ou@4ax.com>
Source record: 63282

Thanks for the description!

It sounds like a design worth copying.

On Sun, 12 Mar 2006 02:04:52 GMT, "Dick, AA5VU" <aa5vuNOSPAM@arrl.net>
wrote:

>In article <nnh612t9v457ck93ujb2fsou2tnrl5848u@4ax.com>,
> John Ferrell <johnferrell@sprintmail.com> wrote:
>
>> I am glad to hear it now meets your expectations. I still have not
>> found a diagram of your antenna, but I did find this very good artical
>> on SWR:
>> http://www.qsl.net/k2hq/swr.htm#PART%201
>
>John,
>
>If you recall the old W9INN ads in QST you he has a 40/80 dipole. It
>was full size 40 meter dipole with what I remember he called a resister
>(that was really a coil) and about a 9 foot length of wire past the coil
>for the 80 meter antenna. It was fed with coax to a center insulator.
>Bill did not believe in baluns.
>
>I modified the antenna by two sets of wires. One for 10 MHz and the
>other for 18 MHz. The 18 MHz seems to be resonant for 6 meters and the
>whole mess works on 24 MHz as well.
>
>I did not see it on the K2HG web page
>
>73, Dick AA5VU
John Ferrell W8CCW

2522. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 19:50:06 UTC
From: w8ji@akorn.net
Message-ID: <1142193006.348265.71290@v46g2000cwv.googlegroups.com>
Source record: 63283

Richard Harrison wrote:
> Reg wrote:
> "What is the value of the constant C?"
> 395
> It is found on page 137 of Kraus` 1950 edition of "Antennas".
> Best regards, Richard Harrison, KB5WZI

Richard,

You didn't read something correctly.

Reg asked for "C" for a small vertical with uniform current over a perfect groundplane.

You are off by nearly a factor of 4 times.

For a monopole with uniform current, C=1580
For a monopole with triangular current C= 395

Radiation resistance is four times greater when the antenna has uniform current.

73 Tom

2523. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 19:53:49 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <h%_Qf.38147$_S7.31192@newssvr14.news.prodigy.com>
Source record: 63284

Cecil Moore wrote:
> Reg, I believe it would be 10*pi^2 = 98.7, half of the
> value of a small dipole.

My bad. I falsely assumed that the length in the
monopole equation was 1/2 the length in the dipole
equation. Another senior moment.
--
73, Cecil http://www.qsl.net/w5dxp

2524. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:03:01 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <V7%Qf.38148$_S7.3650@newssvr14.news.prodigy.com>
Source record: 63285

w8ji@akorn.net wrote:
> For a monopole with uniform current, C=1580
> For a monopole with triangular current C= 395
>
> Radiation resistance is four times greater when the antenna has uniform
> current.

Reg didn't say "uniform current". He said "uniformly distributed
current". A triangular current wave is uniformly distributed,
i.e. it has a linear taper. Seem to me we need to find out
what Reg meant by "uniformly distributed current". I thought
he meant uniformly triangularly distributed. I think Richard
thought the same thing.
--
73, Cecil http://www.qsl.net/w5dxp

2525. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:19:07 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <f909129t6kfkt2h449c04jk7g30gfndl5s@4ax.com>
Source record: 63286

On Sun, 12 Mar 2006 12:14:43 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Reg wrote:
>"What is the value of the constant C?"
>
>395
>
>It is found on page 137 of Kraus` 1950 edition of "Antennas".
>

Is that for uniform current as Reg asked?

Owen
--

2526. NEC 4.1 Anomaly

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:31:55 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <%y%Qf.18908$Cp4.12850@edtnps90>
Source record: 63287

Possibly I am doing something really dumb, but have not been able to figure it out. I have been trying to model an inductor in NEC. NEC2 runs ok. If I run NEC 4.1, single precision (NEC4S600), I get a disconnect of 55 micro-meters between segments 300 and 301 -- which is treated as an open circuit (>0.001 of a segment length at 44 micro-meters).

Changing the number of segments, or the number of turns, by one, corrects the problem. Typically the segment end-points are within < 3 micro-meters. I have not identified all conditions when this occurs, but some combinations of segments, and turns, do produce a disconnect. I have not completely investigated NEC 4.1, double precision, but it does run the code below with no disconnect evident.

73, Frank

```
CM Inductor Calculation (NEC 4.1)
CE
GH 1 300 15 12 6 6 0.02015 0.02015 0
GW 2 3 6 0 12 0 0 12 0.02015
GW 3 6 0 0 12 0 0 0 0.02015
GW 4 3 0 0 0 6 0 0 0.02015
GS 0 0 0.025400
GE 0
EX 0 3 3 00 1 0
FR 0 5 0 0 3.7 0.02
LD 5 1 1 312 5.7001E7
RP 0 181 1 1000 -90 90 1.00000 1.00000
EN
```

2527. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:40:36 UTC
From: richardharrison@webtv.net
Message-ID: <23728-44148744-675@storefull-3254.bay.webtv.net>
Source record: 63290

Tom, W8JI wrote:
"You didn`t read something correctly."

OK, here is the arithmetic.

Radiation Resistance of a Short Electric Dipole:

RR = 80 pi squared (L/lambda)squared

Constant = 80 (8.97) = 790

But a short monopole has 1/2 the resistance of a short dipole.

790 / 2 = 395

All Reg asked for was the constant.

Best regards, Richard Harrison, KB5WZI

2528. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:45:18 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <4a-dnWqZ766NGonZnZ2dnUVZ_vidnZ2d@adelphia.com>
Source record: 63288

Cecil Moore wrote:
> John Popelish wrote:
>
>> Thanks much. This helps me to visualize your method in a much more
>> complete way. I think a photo of the test apparatus would make a fine
>> addition to your web page documenting this result. I am especially
>> interested on how all this stuff was arrayed in space during the test.
>
>
> John, would you agree or disagree with me that for
> a well-designed coil, the delay through the coil is
> fixed by the laws of physics as 1/4WL on the self-
> resonant frequency?

I haven't formed a strong opinion either way, yet. I am not an inductor expert, but am learning lots of interesting things, here. I know that filters with sharp resonances (i.e. multiple db ripple chebychev) often have a delay that varies dramatically over rather narrow frequency ranges near cut off.

But I am finding the discussion and test results fascinating. I don't care who has what opinion. I am just interested in what is factual, and sometimes that can be tricky to determine and understand in a more general context. That is why I am interested in the details of the measurement method as much as I am in the result. I am still having a bit of trouble visualizing how the coil was instrumented and terminated to get this result. I am also a beginner when it comes to S parameters.

My reservation with you and few others is your emotional investment in being correct. It makes your opinions less trustworthy. I get the feeling that some of you care more about having had the right answer than what the result tells us about reality.

I have been wrong lots of times, and I got over it (sometimes with difficulty). I accept that I will be wrong about lots more things before I die. The best I can hope for is to realize my mistakes as rapidly and gracefully as possible.

> If the self-resonant frequency of a well-designed coil
> is measured at 16 MHz, then the delay through the coil
> is 90 degrees at 16 MHz and therefore equal to 15.625 nS.
>
> Using the self-resonant frequency to determine the
> delay is an easy and accurate way to measure that
> delay.

For a pure delay process, like a classical transmission line, or acoustic delay line, I agree. I am not so sure for something with more ways energy communicates across it, like an extended inductor.

That is the open question, in my mind.

> If the delay through the coil, measured at 1/4 the
> self-resonant frequency, is appreciably different
> from the 15.6 nS measured at 16m, then the measurement
> contains an error.
>
> Agree/disagree?

No. Not yet. When the test method has been agreed upon, and exactly what that method measures is understood by all interested parties, there will be no need for such opinions. The results will be the results. Then we can work on our opinions of what the results mean in a more general context (how we extrapolate to other, related, but different cases.

2529. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:46:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <xM%Qf.56094$Jd.27696@newssvr25.news.prodigy.net>
Source record: 63289

Owen Duffy wrote:
> Is that for uniform current as Reg asked?

Reg asked for "uniformly distributed current". I took
that to mean having a constant slope. Wonder what Reg
really meant?
--
73, Cecil http://www.qsl.net/w5dxp

2530. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 20:57:55 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nX%Qf.56096$Jd.37014@newssvr25.news.prodigy.net>
Source record: 63291

John Popelish wrote:
> I am still having a
> bit of trouble visualizing how the coil was instrumented and terminated
> to get this result. I am also a beginner when it comes to S parameters.

I think Tom did what I did the other night. I hooked the coil
across my IC-756PRO's output, used minimum power, and tried
to supply 4 MHz power to the 4+j1250 ohm coil that I have.
It naturally rejected (reflected) virtually all of that power.
I found, as Tom did, that the standing wave current at both
ends has virtually identical phases but that is already known.
The delay through the coil simply cannot be tested in that
test arrangement. Tom just repeated Roy's experiment of a
few years ago and obtained the same meaningless results.
So did I so I didn't even bother to report them.

> My reservation with you and few others is your emotional
> investment in being correct. It makes your opinions less
> trustworthy.

Whoa there, I just made a mental blunder about radiation
resistance and readily admitted it. My emotional investment
is in fighting falsehoods, myths, and old wives' tales.
That's all.

The test method for determining the delay through a piece
of transmission line or a coil is the same as it has been
for more than a century. Find the 1/4WL self-resonant
point and calculate the delay. Other methods, resulting
in far different results, are obviously invalid.
--
73, Cecil http://www.qsl.net/w5dxp

2531. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 21:06:15 UTC
From: richardharrison@webtv.net
Message-ID: <23728-44148D47-676@storefull-3254.bay.webtv.net>
Source record: 63293

Owen Duffy wrote:
"Is that for uniform current as Reg asked?"

Reg described a short vertical wire above a perfect ground.

Without a capacitive hat or some such device, you have an open circuit at the tip of the antenna (zero current) and a finite current at the driven end of the wire. How would the current be uniform end to end?

Best regards, Richard Harrison, KB5WZI

2532. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 21:14:05 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <v43912p8njkvun9t4ki0838igdrtuuoj5t@4ax.com>
Source record: 63292

On Sun, 12 Mar 2006 20:46:21 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Owen Duffy wrote:
>> Is that for uniform current as Reg asked?
>
>Reg asked for "uniformly distributed current". I took
>that to mean having a constant slope. Wonder what Reg
>really meant?

In the context of his use, I think the most probably reasonable interpretation of Reg's words is that the current is uniform at all points on the radiator.

Yes, it does also have a constant slope (of zero), so you will ba able to argue a correct interpetation either way, even if the results are different.

It was interesting how many different interpretations were made, and then how many different answers to such a simple questions, even a text book incorrectly quoted (yes, subject to your interpretation of Richard's interpretation of what was in Reg's mind. Reg will no doubt chuckle when he wakes in the morning.

Owen
--

2533. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 21:21:45 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <Jh0Rf.14166$8w2.4767@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63295

Richard,

Your calculation is OK as far as it goes. However, you overlooked the fact that "L" is different for the dipole and the monopole. The monopole has 1/2 the length of the dipole or 1/4 the length squared.

The coefficient Reg asked for is therefore 4 times the number you quoted.

73,
Gene
W4SZ

Richard Harrison wrote:
> Tom, W8JI wrote:
> "You didn`t read something correctly."
>
> OK, here is the arithmetic.
>
> Radiation Resistance of a Short Electric Dipole:
>
> RR = 80 pi squared (L/lambda)squared
>
> Constant = 80 (8.97) = 790
>
> But a short monopole has 1/2 the resistance of a short dipole.
>
> 790 / 2 = 395
>
> All Reg asked for was the constant.
>
> Best regards, Richard Harrison, KB5WZI
>

2534. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 21:26:33 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <tfydnUzZvdQmDYnZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 63294

Cecil Moore wrote:
> John Popelish wrote:
>
>> I am still having a bit of trouble visualizing how the coil was
>> instrumented and terminated to get this result. I am also a beginner
>> when it comes to S parameters.
>
>
> I think Tom did what I did the other night. I hooked the coil
> across my IC-756PRO's output, used minimum power, and tried
> to supply 4 MHz power to the 4+j1250 ohm coil that I have.
> It naturally rejected (reflected) virtually all of that power.
> I found, as Tom did, that the standing wave current at both
> ends has virtually identical phases but that is already known.
> The delay through the coil simply cannot be tested in that
> test arrangement. Tom just repeated Roy's experiment of a
> few years ago and obtained the same meaningless results.
> So did I so I didn't even bother to report them.
>
>> My reservation with you and few others is your emotional
>> investment in being correct. It makes your opinions less
>> trustworthy.
>
> Whoa there, I just made a mental blunder about radiation
> resistance and readily admitted it. My emotional investment
> is in fighting falsehoods, myths, and old wives' tales.
> That's all.

But the goal of such "fights" should be altering other's opinions.
How's that been working out for you? ;-)

> The test method for determining the delay through a piece
> of transmission line or a coil is the same as it has been
> for more than a century.

Have you got a reference to a Bureau of Standards bulletin on this
method to measure inductive current delay? It doesn't work for
filters made of lumped inductors, capacitors and resistors.
Otherwise, there would not be special designs that sacrifice other
properties, to keep delay almost constant as frequency changes.

Wait a second, an inductor at resonance is a filter made of
inductance, capacitance and resistance (and transmission line
effects). Hmm.

> Find the 1/4WL self-resonant
> point and calculate the delay. Other methods, resulting
> in far different results, are obviously invalid.

"Obvious" must be something in the eye of the beholder.

If a 2 port device (Are there really any perfect 2 port devices that don't have an implied 3rd port?) involves only a single energy transport mechanism from one port to the other, this is a bit closer to obvious. But if the device uses competing, parallel energy transport mechanisms (EM waves, inter turn capacitance, mutual inductance, etc.) it is less clear that the combination of energy transport effects has a constant delay effect on a current wave as frequency changes.

2535. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 21:31:06 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <jd491294510ei68pk61oiflge010lfsft8@4ax.com>
Source record: 63296

On Sun, 12 Mar 2006 15:06:15 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Owen Duffy wrote:
>"Is that for uniform current as Reg asked?"
>
>Reg described a short vertical wire above a perfect ground.
>
>Without a capacitive hat or some such device, you have an open circuit
>at the tip of the antenna (zero current) and a finite current at the
>driven end of the wire. How would the current be uniform end to end?

That is *your* logic, and on the basis of it, you have chosen to ignore part of the original question, the explicit statement "the current in the wire being assumed uniformly distributed", without qualifying your one word answer.

Owen
--

2536. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 22:15:28 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <441Rf.56121$Jd.47791@newssvr25.news.prodigy.net>
Source record: 63297

Owen Duffy wrote:
> Yes, it does also have a constant slope (of zero), so you will ba able
> to argue a correct interpetation either way, even if the results are
> different.

OK, I will change my statement to a "constant non-zero
slope". I really think that what's Reg meant but obviously
only Reg's opinion is important on that matter. :-)

> Reg will no doubt
> chuckle when he wakes in the morning.

:-) When I chuckle with a hangover, it hurts. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2537. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 22:40:17 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <lr1Rf.56129$Jd.33926@newssvr25.news.prodigy.net>
Source record: 63298

John Popelish wrote:
> But the goal of such "fights" should be altering other's opinions. How's
> that been working out for you? ;-)

That's not my goal at all, John. My goal is to discuss the technical facts. I really don't care if anyone "alters their opinions" or not. That has been a personality characteristic since my early days. My sister just remarked on that same fact a few days ago. She said, "You have never cared what other people think about you." It wasn't a criticism, just an observation.

We may understand the results of Tom's latest measurement by considering the following:

50 ohm source===1 WL 50 ohm lossless coax===8+j2500 load

Since the transmission line is lossless, this doesn't change anything except for the additional one cycle delay through the line.

What's the system SWR? I get 16000:1. I asked Tom to measure the currents in the absence of a high SWR and he takes his measurements in a 16000:1 SWR environment. How well do you think he honored my request for an SWR of 1:1? Shucks, he only missed it by 1,600,000%. :-)

There is essentially no net energy flow in the above network. Why are we suprised to measure equal standing wave currents on each side of the coil? It wouldn't have surprised me if Tom had measured *zero* phase shift just like the lumped-circuit model predicts. The traveling-wave delay through a coil simply cannot be measured using Tom's methods.
--
73, Cecil http://www.qsl.net/w5dxp

2538. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 22:44:47 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <Ia6dnY_vdrXVOYnZSa8jmw@karoo.co.uk>
Source record: 63299

jawod wrote:

> I know this has been addressed on the group before but I remain confused.
>
> I will string a dipole in the trees. The coax shield will be earth
> grounded, as well as the balun and lightening arrestor.
>
> Now, in the 2nd floor shack, I've read that running a ground line from
> equipment 15 feet or more (in this case) to an earth ground will bring
> RF into the shack and be a potent source for TVI, etc.
>
> My choice, then, is to use the ground on the mains.
>
> Given that the shield is earth grounded on the antenna and the equipment
> is grounded to the mains, isn't this a good scenario for ground loop?
>
> Seems like a catch-22.
>
> My own gut says safety first, lower risk of RF issues after-the-fact by
> ? what ?
>
> I remember suggestions of coiling the ground wire in an RF choke,
> multiple ground lines of various lenghts to mess with harmonics.
> Ferrite beads? Chicken blood and a black cat?
>
> John

John,

So you are taking a balanced aerial, a dipole, chuck it onto a balun and the feed it with a coax. Nothing wrong with that...

There should not be any "involvement" by the coax in the functionality of that dipole. The grounding of the coax are for shielding purpose only and as such, you ground the coax at one of the terminations, in your case, the transceiver.

Building regs normally demand that the house's mains ground should be connected to a ground rod somewhere, normally at a central point.

Assuming that every level adds 2.5m, you are sitting 5 meter up. Even if you ground your rig with a separate connection to a ground rod, you'll still be electrically 5 meter away from ground (at least).

You will always have RF in your shack <PERIOD>, It's just a question where it is and how you discover it. It's either RF current or RF Voltage. As the

RF voltage is what you normally discovers by having a "hot" key or transceiver, you need to phase shift the ground connection of the coax in time so you have a max current at your rig instead of high voltage.

This is solved by using an artificial ground. Buy or build one, they are dirt simple. MFJ sells one.

The artificial ground is basically a capacitor and an inductor in series with the coax SHIELD(!). Both cap and coil is variable/tunable.
By changing the cap and coil, you can move the RF Voltage and RF current +/- 90 degrees. You just adjust for max RF current at your operating frequency.

This worked fine at the 32nd floor for me...

Cheers

Dan / M0DFI

2539. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 22:48:03 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <4414a523_1@newsfeed.slurp.net>
Source record: 63300

ORIGINAL MESSAGE:

Dick, AA5VU wrote:

> It
> was full size 40 meter dipole with what I remember he called a
> resister (that was really a coil)

~~~~~~
The word was "resonactor". I have one of his antennas and it works fine.

I have not examined the resonactor in detail, but I believe it is just an inductor which is carefully wound to be self-resonant at the desired frequency, thereby eliminating the need for a separate capacitor to resonate it. A clever idea, since eliminating the separate capacitor easily allows full legal power without the expense of a very high voltage capacitor.

W9INN's trap dipoles are the only ones I know of which advertise full legal power handling, and that's why I purchased one. I've been running full power RTTY on mine for five years with no problems.

Since I purchased mine there may have been other full power trap dipoles come on the market. If anyone knows of one, please reply. I'm always curious about such things.

Bill, W6WRT
~~~~~~

2540. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 23:02:20 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <0M1Rf.53582$H71.9935@newssvr13.news.prodigy.com>
Source record: 63301

Richard Clark wrote:
> On Sun, 12 Mar 2006 02:29:51 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>
>>Tom Donaly wrote:
>>
>>>Cecil, have you ever read the book _Don Quixote_, by Cervantes?
>>>There's a character in there you remind me of.
>>
>>Tom, please don't tell me that you also believe that a distributed-
>>network analysis using wave reflection theory is "gobbledygook".
>
>
> Hmm, Tom, let me guess - Dulcinea. The object of Quixote's attention
> who never appears, but is always dreamt about.

Hi Richard,
that sounds like Cecil's theory, which he's always ready to
defend with his strong right arm. I can't believe all the fuss he's made
over something as trivial as a loading coil.
73,
Tom Donaly, KA6RUH

2541. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 23:06:42 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <6Q1Rf.53583$H71.6987@newssvr13.news.prodigy.com>
Source record: 63302

Cecil Moore wrote:

> Tom Donaly wrote:
>
>> Cecil, have you ever read the book _Don Quixote_, by Cervantes?
>> There's a character in there you remind me of.
>
>
> Tom, please don't tell me that you also believe that a distributed-
> network analysis using wave reflection theory is "gobbledygook".

It is when the components are small enough in relation to a wavelength
that you don't have to use "a distributed-network analysis". Actually,
the way you've been talking about it, lately, it sounds more like
word salad than gobbledygook.
73,
Tom Donaly, KA6RUH

2542. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 23:27:26 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <D-SdnW8vmNKNMInZRVn-iw@adelphia.com>
Source record: 63303

Cecil Moore wrote:
(snip)
> We may understand the results of Tom's latest
> measurement by considering the following:
>
> 50 ohm source===1 WL 50 ohm lossless coax===8+j2500 load
(snip)

I am not sure I understand this. As I understand an S parameter tester, both source and load are 50 ohms. Tom says he fed and monitored the signal with a pair of current transformers. I assume that one transformer was fed from the 50 ohm source, and the other fed the 50 ohm load, and S21 is the forward transfer gain parameter that the analyzer can use to calculate a net delay at any frequency. But if I am right about these connections, it leaves open the question of what was on the other side of the current transformers, if the coil was between them. Were those points grounded, terminated, what?

2543. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 23:44:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1219ci9lkjprr1d@corp.supernews.com>
Source record: 63304

Richard Harrison wrote:
> Owen Duffy wrote:
> "Is that for uniform current as Reg asked?"
>
> Reg described a short vertical wire above a perfect ground.
>
> Without a capacitive hat or some such device, you have an open circuit
> at the tip of the antenna (zero current) and a finite current at the
> driven end of the wire. How would the current be uniform end to end?

For the answer to that, open your Kraus again, and go to the beginning of the chapter (5) you quoted from. It's explained in the first paragraph. There's even a picture, Fig. 5-1.

Roy Lewallen, W7EL

2544. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-12 23:45:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1219clp27lvpu79@corp.supernews.com>
Source record: 63305

Richard Harrison wrote:
> Tom, W8JI wrote:
> "You didn`t read something correctly."
>
> OK, here is the arithmetic.
>
> Radiation Resistance of a Short Electric Dipole:
>
> RR = 80 pi squared (L/lambda)squared
>
> Constant = 80 (8.97) = 790
>
> But a short monopole has 1/2 the resistance of a short dipole.
>
> 790 / 2 = 395
>
> All Reg asked for was the constant.
>

If you'll read more in the chapter of Kraus you're quoting, you'll
notice that L is the length of the dipole, not the length of a monopole.
Do the proper substitution and you'll get the correct answer.

Roy Lewallen, W7EL

2545. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:05:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <kH2Rf.18$4L1.12@newssvr11.news.prodigy.com>
Source record: 63306

Tom Donaly wrote:
> that sounds like Cecil's theory, which he's always ready to
> defend with his strong right arm. I can't believe all the fuss he's made
> over something as trivial as a loading coil.

As long as someone asserts that there is no phase shift
through a 75m mobile bugcatcher coil, I will continue
pointing out that they are wrong. The phase shift
through a 75m bugcatcher coil is approximately the
same as it is at the bugcatcher coil's self-resonant
frequency. That's simply a law of physics that some
people wish didn't exist but it does in spite of
their wishes.
--
73, Cecil http://www.qsl.net/w5dxp

2546. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:09:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <iL2Rf.21$4L1.17@newssvr11.news.prodigy.com>
Source record: 63307

John Popelish wrote:

> Cecil Moore wrote:
>> We may understand the results of Tom's latest
>> measurement by considering the following:
>>
>> 50 ohm source===1 WL 50 ohm lossless coax===8+j2500 load
>
> I am not sure I understand this. As I understand an S parameter tester,
> both source and load are 50 ohms. Tom says he fed and monitored the
> signal with a pair of current transformers.

I don't think he fed the coil with a current transformer.
I think he simply had the coil across the signal generator's
output terminals with current pickup devices at each end
of the coil. The above diagram doesn't change anything
about his configuration but does point out the conceptual
mistake he made which is the identical conceptual mistake
that he and Roy have been making for years. Their model
presupposes their measured results. How could their
results be anything else?
--
73, Cecil http://www.qsl.net/w5dxp

2547. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:26:59 UTC
From: w8ji@akorn.net
Message-ID: <1142209619.304856.265010@j33g2000cwa.googlegroups.com>
Source record: 63308

http://www.w8ji.com/mobile_and_loaded_antenna.htm

http://www.w8ji.com/inductor_current_time_delay.htm

2548. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:28:28 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <r3f912drbusfdugh59rd8o3e3ip2vr4llr@4ax.com>
Source record: 63309

On Fri, 10 Mar 2006 03:12:11 GMT, "Jerry Martes"
<j.jmartes@verizon.net> wrote:

> I have a HP8405A Vector Voltmeter I'll give you and even pay the shipping
>if that is of any help with the measurements.

Hi Jerry,

So, any taker?

73's
Richard, KB7QHC

2549. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:44:48 UTC
From: jawod <jawod@fuse.net>
Message-ID: <4414C080.6050601@fuse.net>
Source record: 63310

w8ji@akorn.net wrote:
> jawod wrote:
>
>>I know this has been addressed on the group before but I remain confused.
>
>
>>My own gut says safety first, lower risk of RF issues after-the-fact by
>>? what ?
>>
>>I remember suggestions of coiling the ground wire in an RF choke,
>>multiple ground lines of various lenghts to mess with harmonics.
>>Ferrite beads? Chicken blood and a black cat?
>
>
>
> John,
>
> You have been misled and confused by bad information.
>
>
>
> Richard Clark has given you good advice.
>
>
> The only antenna that requires an RF ground is an antenna with a single
> conductor feedline worked against ground, or an antenna that is poorly
> designed or constructed.
>
> The only reasons to have a hamshack ground, unless you are trying to
> band-aid an antenna that is improperly constructed or feed a longwire,
> are electrical safety and lightning.
>
> Electrical safety can be taken care of by using a three wire outlet
> with grounding to the sagfety ground, and by following national codes.
> National codes require your station ground be bonded to the power mains
> entrance ground. We are not suposed to have two isolated grounds
> according to NEC, and it is a bad idea to have isolated grounds for
> lightning, safety, and RFI reasons.
>
> I'm afraid all the talk about ground loops and such have confused you.
>
> Try reading this:
>
> http://www.w8ji.com/ground_systems.htm

>
> 73 Tom
>
My apologies to Richard and Tom.

Your advice IS appreciated. Just got my ego bruised a bit.

john

2550. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 00:47:36 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <li3Rf.1782$%e1.217@trnddc05>
Source record: 63311

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:r3f912drbusfdugh59rd8o3e3ip2vr4llr@4ax.com...
> On Fri, 10 Mar 2006 03:12:11 GMT, "Jerry Martes"
> <j.jmartes@verizon.net> wrote:
>
>> I have a HP8405A Vector Voltmeter I'll give you and even pay the
>> shipping
>>if that is of any help with the measurements.
>
> Hi Jerry,
>
> So, any taker?
>
> 73's
> Richard, KB7QHC

Hi Richard

No takers. No replies.

Jerry

2551. Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 01:23:56 UTC
From: chris <cpwendling@yahoo.com>
Message-ID: <1142213036.108163.297200@e56g2000cwe.googlegroups.com>
Source record: 63312

Folks,

I've got a question concerning Yagi antenna's: Why (or how) does the
longer
element "reflect" the radio wave, and the shorter element "direct" the

radio wave.

Also, on many multi-element Yagi designs, the norm seems to be just one
reflector, and many director elements. Does this mean that the
reflector is more "effective" than the directors at modifying the
radiation field?
Why are there no designs with just one director, and multiple
reflectors? Why does the shorter element apparently affect the field
more than the longer elements?

I've seen some interesting 3-D graphics of field strength
renderings for antenna's on the Internet, and some software can produce
some
nice looking 2-D graphics to help visualize the H and E fields. Does
anyone know of a site that let's one vary the element lengths, and
watch the effect on the 3-D graphic of the field strength vectors as
the element
lengths are varied?

Cheers!
Chris AI4MI

2552. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 01:59:22 UTC
From: richardharrison@webtv.net
Message-ID: <2813-4414D1FA-1068@storefull-3257.bay.webtv.net>
Source record: 63313

Roy, W7EL wrote:
"There`s even a picture Fig 5-1"

Yes, exactly as I speculated.

Reg`s question that I tried to answer was:
"What is the value of the constant C?"

My answer is 395 and I`nm sticking with it until someone shows me the error in my ways.

Best regards, Richard Harrison, KB5WZI

2553. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:22:01 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dH4Rf.38222$_S7.20272@newssvr14.news.prodigy.com>
Source record: 63314

w8ji@akorn.net wrote:
> http://www.w8ji.com/inductor_current_time_delay.htm

Don't you think it only fair to to the readers to
indicate on that new web page that you measured
the current in the midst of of a 16000:1 SWR?
That's what I get for 8+j2500 being fed by a
50 ohm source.
--
73, Cecil http://www.qsl.net/w5dxp

2554. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:23:52 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YI4Rf.38223$_S7.21255@newssvr14.news.prodigy.com>
Source record: 63315

Jerry Martes wrote:
> No takers. No replies.
>
> Jerry

Jerry, I've sent you two emails. Did you not get them?
--
73, Cecil http://www.qsl.net/w5dxp

2555. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:36:04 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <4414DAA3.5792458B@shaw.ca>
Source record: 63316

One way to beat this is to tune with low power and touch the rig. Every few days increase the power until you have built up a tolerance to the RF tingle.

You could also try this with the household power, starting at 2 or three volts, and increasing it gradually over time until you build up your immunity to electric shock as well.

Irv VE6BP :-)

2556. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:36:52 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <8V4Rf.4714$o41.3612@trnddc06>
Source record: 63317

"Cecil Moore" <mycall@arrl.net> wrote in message
news:YI4Rf.38223$_S7.21255@newssvr14.news.prodigy.com...
> Jerry Martes wrote:
>> No takers. No replies.
>>
>> Jerry
>
> Jerry, I've sent you two emails. Did you not get them?
> --
> 73, Cecil http://www.qsl.net/w5dxp

No Cecil, I didnt. Maybe I wrote my address wrong.

I figured you realized that the HP Vector Voltmeter wasnt capable of
providing the data needed for this discussion.

Jerry KD6JDJ j.jmartes@verizon.net

2557. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:38:03 UTC
From: w8ji@akorn.net
Message-ID: <1142217483.531237.70100@j52g2000cwj.googlegroups.com>
Source record: 63318

Richard Harrison wrote:
> Roy, W7EL wrote:
> "There`s even a picture Fig 5-1"
>
> Yes, exactly as I speculated.
>
> Reg`s question that I tried to answer was:
> "What is the value of the constant C?"
>
> My answer is 395 and I`nm sticking with it until someone shows me the
> error in my ways.
>
> Best regards, Richard Harrison, KB5WZI

Is everyone from Texas like this?

2558. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:42:33 UTC
From: w8ji@akorn.net
Message-ID: <1142217753.842244.236260@v46g2000cwv.googlegroups.com>
Source record: 63319

There is absolutely no reason to have an RF ground unless:

1.) You are end feeding a single wire antenna that is brought into the shack

2.) The two conductor feedline you have brought in, be it coax or open wire, is connected to an antenna that is not properly designed or installed

The safety ground is required. The RF ground is a band-aid for something else being wrong.

73 Tom

2559. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 02:56:05 UTC
From: richardharrison@webtv.net
Message-ID: <24187-4414DF45-859@storefull-3251.bay.webtv.net>
Source record: 63321

Roy, W7EL wrote:
"Do the proper substitutionn and you`ll get the correct answer."

Yes. The warning also appears on page 137:
"In developing the field expressions for the short dipole, which were used in obtaining (5-56), (5-56) is the value of radiation resistance, the restriction was made that lambda is much larger than the length of the dipole L." No problem there, Reg specified a short monopole.

Kraus does a sample calculation for a short dipole. I used Kraus` data and got the same answer when duplicating his calculation.

But Reg was not asking for an answer to a specific problem. Reg was asking for the value of the constant in a formula of the same form. Kraus gives it as 80 pi squared for a dipole.. This is 790.

We know that a monopole has half the resistance of a dipole. Example: 73 ohms and 36.5 ohms. 790 / 2 = 395. That`s not a resistance, it is only the value of a constant which must be multiplied by (L/lambda) squared to give the radiation resistance of a very short monopole.

Best regards, Richard Harrison, KB5WZI

2560. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:03:07 UTC
From: w8ji@akorn.net
Message-ID: <1142218986.976512.61520@i39g2000cwa.googlegroups.com>
Source record: 63320

Gene Fuller wrote:
> Richard,
>
> Your calculation is OK as far as it goes. However, you overlooked the
> fact that "L" is different for the dipole and the monopole. The monopole
> has 1/2 the length of the dipole or 1/4 the length squared.
>
> The coefficient Reg asked for is therefore 4 times the number you quoted.

1.) He could have gotten length correct and assumed current was
triangular. That would reduce radiation resistance by a factor of four.

2.) He could have assumed uniform current and gotten length wrong by a
factor of two, and that would reduce radiation resistance by a factor
of four.

2561. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:03:16 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <4414e0f4_4@newsfeed.slurp.net>
Source record: 63323

ORIGINAL MESSAGE:

chris wrote:

> Also, on many multi-element Yagi designs, the norm seems to be just
> one reflector, and many director elements. Does this mean that the
> reflector is more "effective" than the directors at modifying the
> radiation field?

~~~~~~
In a sense, yes it is more effective. Think about it this way: If the reflector does its job, there is no more energy behind it to be reflected any further. Just the opposite with a director. The more it directs the energy, the more there is to be further directed.

When yagis first became popular there were designs published with two or more reflectors. People soon realized the second one added little or nothing and they disappeared.

I suppose if you want really exceptional F/B ratio you could use a second reflector, but most people don't bother. One is enough.

Bill, W6WRT
~~~~~~

2562. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:05:57 UTC
From: w_tom <w_tom1@usa.net>
Message-ID: <1142219157.314335.180560@j52g2000cwj.googlegroups.com>
Source record: 63322

Do you think a loop will stop what three miles of sky could not?
Effective protection is not about stopping a transient. That does not
work and is they myth even used to promote plug-in protectors. A most
trivial earth ground is a massive improvement in protection. That
incoming wire must be earthed - directly or through a protector -
before entering the building. That simplest earthing is many times
more effective than 100 loops. Effective for direct strkes - which
means induced trasnients would be made irrelevant.

The US Forestry Service has documented that most direct strikes to
trees do not leave appreciable indication. Even a standard household
earth ground in conductive soil will provide protection from most
lightning strikes. Then we enhance that earthing for other, more
violent and less frequent direct strikes.

Quality of earthing determines how many direct strikes will be
earthed without damage. Even some earthng to a single point is a
massive improvement in transistor protection. But the loop is about
as useful as bad science fiction. For loop to be effective, then loop
also must seriously degrade radio reception. How many reasons why that
loop is useless? Five?

Robert11 wrote:
> Hello:
>
> Anyone have any thoughts on (hopefully not experiences) whether putting a
> loop of, e.g. 1 foot in diameter,
> on a coax run from an outdoor receive-only antenna has any merit as far as
> helping any emf lightning induced pulses from traveling into a house ?
>
> Have heard about this, but it's hard to believe it would actually do
> anything in practice.
> But,... ?
>
> B.

2563. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:08:12 UTC
From: jawod <jawod@fuse.net>
Message-ID: <4414E21C.9080503@fuse.net>
Source record: 63324

Irv Finkleman wrote:
> One way to beat this is to tune with low power and touch the
> rig. Every few days increase the power until you have built up
> a tolerance to the RF tingle.
>
> You could also try this with the household power, starting at
> 2 or three volts, and increasing it gradually over time until
> you build up your immunity to electric shock as well.
>
> Irv VE6BP :-)

I tried this approach several years ago...got up to about half a kilovolt...

but my wife complained that my glow was keeping her up at night.

2564. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:30:21 UTC
From: w8ji@akorn.net
Message-ID: <1142220621.801581.310250@u72g2000cwu.googlegroups.com>
Source record: 63325

chris wrote:

>Why (or how) does the
> longer
> element "reflect" the radio wave,

A reflector does not reflect anything. It reradiates.

When a element is self-resonant it reradiates with 180 degree phase
inversion.

Spacing from the driven element causes a phase delay. Lets say that
spacing is 90 degrees.

The phase to the rear direction would be -90+180=+90 degrees. Two
elements like this, when phased and in-line, fire in the direction of
lagging current. So the antenna fires towards the driven element.

>and the shorter element "direct" the
> radio wave.

The shorter element doesn't direct. It reradiates energy. When we
shorten an element and excite it with an external field, the current is
advanced some amount in phase besides having the 180 inversion caused
by reradiating an external field. Let's say we shorten it enough that
the phase advances 120 degrees from the shortening, and we have 45
degree spacing.

Now we have -45 (spacing delay) plus 180 flip (reradiation) = +135
degrees. To that we add another +120 because the element is short and
capacitive. That's +255 degrees. +255 is the same as -105 degrees, and
again since the elements fire in the direction of lagging currents the
driven element's energy is reenforced in the direction of the short
element.

Sorry you asked? Well, that's how it works.

> Also, on many multi-element Yagi designs, the norm seems to be just one
> reflector, and many director elements. Does this mean that the
> reflector is more "effective" than the directors at modifying the
> radiation field?

No.

Once something removes energy form the rear, there is no more energy to
excite and further elements. You can't excite additional reflectors
because there is no energy there to excite them, and so they become
useless hunks of metal without much current.

> Why are there no designs with just one director, and multiple
> reflectors?

Because it doesn't do anything when you put an element in an area where
there is no field to excite it.

Why does the shorter element apparently affect the field
> more than the longer elements?

They don't. They just happen to be where energy has been concentrated,
and as long as they are being excited they can help shape the pattern.

73 Tom

2565. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:38:12 UTC
From: richardharrison@webtv.net
Message-ID: <2814-4414E924-271@storefull-3257.bay.webtv.net>
Source record: 63228

Jerry Martes wrote:
"I figured you realized that the HP Vector Voltmeter wasn`t capable of providing the data needed for this discussion."

More likely necessary. It is dead simple.

You have a whip with a loading coil somewhere in the circuit under it. The r-f energy is reflected by the open circuit at the tip of the antenna. It must return toward the sender. There is no place else to go.

Anything feeding the antenna is in the path. Volts and amps at any and all points along the way are acted upon by the incident and the peflected waves. Straight wire or coil, the effect is the same as there is a periodic variation in volts and amps due to the combination of the effects of volts and amps from both directions.

Should the current at both terminals of a loading coil happen to be the same, it would likely be a rare coincidence.

Best regards, Richard Harrison, KB5WZI

2566. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:39:51 UTC
From: jawod <jawod@fuse.net>
Message-ID: <4414E987.8090501@fuse.net>
Source record: 63226

w8ji@akorn.net wrote:
> There is absolutely no reason to have an RF ground unless:
>
> 1.) You are end feeding a single wire antenna that is brought into the
> shack
>
> 2.) The two conductor feedline you have brought in, be it coax or open
> wire, is connected to an antenna that is not properly designed or
> installed
>
> The safety ground is required. The RF ground is a band-aid for
> something else being wrong.
>
> 73 Tom
>
Tom,

If we assume that there is a well matched antenna: twin line to balun, coax to transceiver. My RF concern was that a long line to ground would serve as an antenna to bring RF into shack. If this is not the case, or if this is easily dealt with, great.

The mains box is on the opposite side of the house...that ground is not conveniently located.

My coax will go thru a lightening arrestor (Polyphase) which will be earth grounded. If I run a low gauge wire from that earth ground to the main box ground, then this is prevents ground loop? What if the distance to the mains box is 60 feet?

John

2567. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:41:34 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OR5Rf.67$4L1.56@newssvr11.news.prodigy.com>
Source record: 63227

Jerry Martes wrote:
> No Cecil, I didnt. Maybe I wrote my address wrong.

I think the <Reply All> feature on my newsreader must not be
working. I didn't get any notice that it didn't go through.
I'll send you a regular email.

> I figured you realized that the HP Vector Voltmeter wasnt capable of
> providing the data needed for this discussion.

Here's the procedure for measuring the electrical length of
a base loading coil. That's the same as the delay through
the coil.

1. Mount your base loading coil on your vehicle and remove
the stinger. Note that the current is zero at the top of
the coil with the stinger removed.

2. Use an antenna analyzer, like an MFJ-259B to locate the
self-resonant frequency. It will be the first frequency
going up in frequency for which the reactance is zero and
the resistance is very low. My 75m bugcatcher coil has
a self-resonant frequency of 6.6 Mhz which is an
electrical 90 degrees at 6.6 MHz.

3. Calculate the length of the RF cycle at the self-resonant
frequency. 1/6600000 = 152 nS for 360 degrees at 6.6 MHz.
The coil is an electrical 90 degrees long on its self-resonant
frequency so the delay through the coil is 152/4 = 38 nS.

38 nS is also the approximate delay through the coil when
used as a base loading coil on 4 MHz. One RF cycle on 4 MHz
takes 250 nS so 90 degrees (1/4WL) of that cycle is 62.5 nS.
The coil is providing 38/62.5 = 61% of the antenna on 4 MHz.

Forget the bogus coil delays posted by the "experts". They
are measuring standing wave current which is known not to
change phase on either end of the coil and it doesn't do a
bit of good to measure something that doesn't ever change.
--
73, Cecil http://www.qsl.net/w5dxp

2568. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:46:25 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <lW5Rf.68$4L1.66@newssvr11.news.prodigy.com>
Source record: 63229

w8ji@akorn.net wrote:
> Is everyone from Texas like this?

Before you jump the gun, we should probably wake Reg
up and ask him what he really meant. I don't think
he was asking about an infinitessimal vertical.
--
73, Cecil http://www.qsl.net/w5dxp

2569. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:53:33 UTC
From: richardharrison@webtv.net
Message-ID: <2813-4414ECBD-1075@storefull-3257.bay.webtv.net>
Source record: 63231

Gene Fuller wrote:
"However, you overlooked the fact that "L" is gifferent for the dipole and monopole."

L is not a constant. L is a variable in another part of the formula. The difference in radiation resistance between a dipole and a monopole is a constant. It equals 2, not 4, not 8, or not 16.

Best regards, Richard Harrison, KB5WZI

2570. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 03:55:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <z26Rf.69$4L1.31@newssvr11.news.prodigy.com>
Source record: 63230

Richard Harrison wrote:
> We know that a monopole has half the resistance of a dipole. Example: 73
> ohms and 36.5 ohms. 790 / 2 = 395. That`s not a resistance, it is only
> the value of a constant which must be multiplied by (L/lambda) squared
> to give the radiation resistance of a very short monopole.

Does it matter that for a vertical that is 1/2 of the length
of the dipole, (L/lamda)^2 is different by a factor of 4?
--
73, Cecil http://www.qsl.net/w5dxp

2571. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 04:06:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Mc6Rf.70$4L1.7@newssvr11.news.prodigy.com>
Source record: 63233

Richard Harrison wrote:
> Should the current at both terminals of a loading coil happen to be the
> same, it would likely be a rare coincidence.

All one has to do to see radical changes in the currents
at the ends of the coil is move the coil up and down
a 3/4WL radiator. One can find a place where current
at the top of the coil is five times the current at
the bottom of the coil. That's just the way standing
wave current works. Too bad there are so many myths
and old wives' tales being spread about it by alleged
"experts" who have forgotten EE201.
--
73, Cecil http://www.qsl.net/w5dxp

2572. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 04:09:05 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <1219ru8so8fp2f@corp.supernews.com>
Source record: 63232

The hour is growing late and the urge to tell a story is upon me. Note, that unlike others, I never imbibe alcoholic beverages. This is a true story.

A large, expensive, rotatable LPDA was erected on a tall tower and tested in an informal way with a receiver and short-wave broadcast transmitters as signal sources. Nulls were where they were supposed to be. F/B was roughly what was expected. Front lobe seemed about right.

A month went by and it was time to perform more careful measurements. A 180 swing while listening to a distant carrier suggested that there was more gain off of the back than off of the front! Wise men pondered that this must be a measurement error.

Impedances were very close to expected. The scheme that was used to determine that the antenna needed to be brought back to earth were these:

(Keep in mind that this is a LPDA and not a Yagi.) A 6db pad was put in the line to ensure that the nonexistent impedance changes with no change in frequency would not affect things. An accurate, step attenuator was then added in the line. (Should sound familiar.) Antenna was pointed towards a known very high power broadcast station with a known location such that the expected receiving take-off angle was about 6 degrees. Bandwidth was made very narrow and centered on the carrier. Enough attenuation was added to get the S-meter to average either side of a mark. The attenuation was varied by one db up and down with several minutes at each level. Then the antenna was rotated 180 degrees and the change in attenuation to return to the same indication was noted. Ouch. Repeated several times it became clear that the antenna had reversed direction and (are you listening?) a number for the difference in gain (at the angle involved) and the uncertainty in that number was crafted. Lord K. should have said - and may have said - that all measurements comprise at least two numbers: an estimate expressed as a number and an estimate of the uncertainty in the first number expressed as a number.

The evidence was conclusive that something had happened. A search for causality took place with the assistance of NEC. With a good deal of speculation and noting how the largest elements were constructed, it was speculated that one of the rearmost elements (or a part of one of the rearmost elements) may have become detached electrically. An NEC simulation was produced that fit the data. No, this is not proof, but it did furnish additional support for the need to lower the antenna. More support came from measurements at the high end of the frequency range where no anomalies were noted and where the long elements would not be expected to play much of a role.

At significant cost and effort, the antenna was lowered and it was found that one of the mechanical connections of a sleeve with normal screw had not been tightened in a rear element. The conclusive proof was that the screw had not "cut." Apparently, a month of very sight corrosion had isolated part of an element.

So, be my students and find the lessons in this tale. Make a list.

73 and I am off to bed, perchance to dream of antennas, Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net
"

2573. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 04:09:35 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <dpr91293ecf5lellnaup410gdb80m4f8jc@4ax.com>
Source record: 63234

On Mon, 13 Mar 2006 03:41:34 GMT, Cecil Moore <mycall@arrl.net> wrote:
>I'll send you a regular email.
...
>Use an antenna analyzer, like an MFJ-259B to locate the
>self-resonant frequency.

Vector VOLTmeter?
VECtor Voltmeter?!!!

I don' need no stinkin' VECtor VOLTmeter!

Hi Jerry,

Can you take another dumpster dive and see if you can find a Raster
Ammeter?

73's
Richard Clark, KB7QHC

2574. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 04:27:07 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <b6s9129sp3brq8u0fir94s27fkkf8u4ipc@4ax.com>
Source record: 63235

On Sun, 12 Mar 2006 22:39:51 -0500, jawod <jawod@fuse.net> wrote:

> If I run a low gauge wire from that earth ground to the
>main box ground, then this is prevents ground loop? What if the
>distance to the mains box is 60 feet?

Hi John,

This is required by code. Violate code and insurance can dump your policy faster than a lightning strike.

The whole point of that wire is to prevent ground loops - this one being the mother of all loops. If and when lighting gets snubbed by your arrestor, it will bury that charge into this inferior ground (the non-code unconnected ground that is), lift that ground's potential, and that potential will follow its way into the shack (along the shield) to find your safety ground (which is far better suited for that path) and you might happen to be sitting on the shoulder of that current superhighway.

The resistive earth path between your arrestor ground and service ground is not nearly as attractive as the path from safety ground, through power supply, through chassis, through transmission line shield to the arrestor. It is a rare power supply that breaks that path's DC continuity, and a rarer one that RF isolates it both. Unless you are running solely on battery, no charger, and no accessories connected to the rig - there is a path to ground that lightning will find as an alternative.

60 feet is trivial for safety (the RF in lighting is more LF or MF than HF).

73's
Richard Clark, KB7QHC

2575. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 05:04:27 UTC
From: stananger <stananger@********.***>
Message-ID: <v37Rf.4770$o41.2064@trnddc06>
Source record: 63236

Robert11 wrote:

> Hello:
>
> Anyone have any thoughts on (hopefully not experiences) whether putting a
> loop of, e.g. 1 foot in diameter,
> on a coax run from an outdoor receive-only antenna has any merit as far as
> helping any emf lightning induced pulses from traveling into a house ?
>
> Have heard about this, but it's hard to believe it would actually do
> anything in practice.
> But,... ?
>
> B.

you been hanging out on 11 meters?

2576. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 05:17:07 UTC
From: richardharrison@webtv.net
Message-ID: <28826-44150053-804@storefull-3255.bay.webtv.net>
Source record: 63237

Cecil, W5DXP wrote:
"Does it matter that for a vertical that the length of a dipole (L/lambda)squared is different by a factor of 4?"

It doesn`t make a ratio different than two to one in the ratio of resistances of the 1/2-wave dipole to the 1/4-wave monopole. We are not comparing a monopole that is the the length of a dipole with the dipole. We are comparing a monopole that is 1//2 the length of a dipole to the dipole when we make the resistance ratio.

The small dipole is working against a perfect ground in Reg`s specification. It would see its reflection in that perfect ground, so its equivalent length is doubled. Kraus` dipole is presumed to be in free space.

Best regards, Richard Harrison, KB5WZI

2577. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 06:39:03 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <bs8Rf.15683$wH5.10963@trnddc02>
Source record: 63238

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:dpr91293ecf5lellnaup410gdb80m4f8jc@4ax.com...
> On Mon, 13 Mar 2006 03:41:34 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>I'll send you a regular email.
> ...
>>Use an antenna analyzer, like an MFJ-259B to locate the
>>self-resonant frequency.
>
> Vector VOLTmeter?
> VECtor Voltmeter?!!!
>
> I don' need no stinkin' VECtor VOLTmeter!
>
> Hi Jerry,
>
> Can you take another dumpster dive and see if you can find a Raster
> Ammeter?
>
> 73's
> Richard Clark, KB7QHC

Hi Richard

There are sooo many things I dont know anything about. Raster Ammeter is
one of the many things I havent even heard about.
I sure would like to learn how to use a Vector Voltmeter.
Right now, I cant measure impedance (with any confidance of accuracy) when
their VSWR is below about 1.5 to 1 on a 50 ohm line at 137 MHz.

Jerry

2578. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 06:44:10 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <kt4a12l0rm1e7m20d5nje4k1c9k793pi07@4ax.com>
Source record: 63239

On Mon, 13 Mar 2006 06:39:03 GMT, "Jerry Martes"
<j.jmartes@verizon.net> wrote:

> Raster Ammeter is one of the many things I havent even heard about.

"It's a joke, son."
Foghorn Leghorn

2579. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 06:50:06 UTC
From: richardharrison@webtv.net
Message-ID: <23730-4415161E-24@storefull-3254.bay.webtv.net>
Source record: 63241

W_Tom wrote:
"Do you think the loop will stop what three miles of sky could not?"

Depends on what kind of loops and how many.

I`ve worked in several broadcast stations that often got struck by lightning. Their towers were the tallest things around. None of these stations got significant damage from lightning. In addition, none of the station equipment powered from the mains or appliances plugged into the mains at the station ever was damaged.

All these stations used tower lighting chokes, one coil for each tower lighting wire including the neutral going up the tower. Three wires, beacon, side lights, and neutral were usually accommodated with tower lighting chokes. Their primary function is to avoid sapping any of the r-f energy from the tower. Another benefit is that the chokes reject lightning too. They are substantial and all turns are wound side by side (trifiler?) around a large ceramic coil form. The wire is large enough to easily handle the load current. I never worked at a station that used Austin tower lighting transformers instead of chokes, but I`ve seen enough of them to suppose they must isolate about as well as chokes do. One station I worked in had an FM antenna atop one if its AM broadcast towers. Its FM coax was coiled at ground level to isolate the AM r-f and it rejected lightning too. So, if you have enough of the right turns the choke does effectively reject lightning. Inductance is proportional to the size of the coil.

Best regards, Richard Harrison, KB5WZI

2580. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 07:03:22 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <_O8Rf.6000$o41.751@trnddc06>
Source record: 63240

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:kt4a12l0rm1e7m20d5nje4k1c9k793pi07@4ax.com...
> On Mon, 13 Mar 2006 06:39:03 GMT, "Jerry Martes"
> <j.jmartes@verizon.net> wrote:
>
>> Raster Ammeter is one of the many things I havent even heard about.
>
> "It's a joke, son."
> Foghorn Leghorn

Hi Richard

The "raster" had all the earmarks of an imaginary device. I sensed it
was a put on. The problem I have is my inexperience requires that I dont
assume *anything*.
I feel like Rip Van Winkle. The engineering community has developed a
whole lot of nice things since I left it in 1969. And, its like I've
been sleeping for 37 years.

Jerry

2581. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 07:46:17 UTC
From: w_tom <w_tom1@usa.net>
Message-ID: <1142235977.589666.141840@j33g2000cwa.googlegroups.com>
Source record: 63242

The OP asked:
> Anyone have any thoughts on (hopefully not experiences)
> whether putting a loop of, e.g. 1 foot in diameter, on a coax
> run from an outdoor receive-only antenna

One turn of coax is all but not a choke. Then the loop is not located after a better path to earth. It is just a coax loop 1 foot diameter that will somehow stop lightning - without some other path for lightning to seek earth. Somehow it will block lightning and while not impeding radio reception. How many henries stops - not diverts - stops lightning?

Richard Harrison has previously described this choke as part of a system where lightning also has a conductive path to earth. Only with earthing is lightning further discouraged - diverted - by a choke.

Choke can only discourage lightning when lightning has a significantly more conductive path to earth elsewhere. A 1 foot diameter loop of coax does not even begin to accomplish what that choke would, nor is it defined as part of a system that includes earthing. Just some of maybe five reasons why that single coax loop does nothing useful.

A coax loop is really not a choke. A choke by itself does not even stop what three miles of sky could not. But a choke can be part of a system that diverts lightning to some other earthing path. Without earth ground, even a choke would not be very effective. And a one loop of coax does not even perform as a choke would. So many reasons why that coax loops does nothing effective.

Then the numbers. How many henries does a single 1 foot loop of coax cable create? Ballpark - maybe 1 microhenry. How does a microhenry stop or block lightning? Would inductance existing in an uncoiled coax wire actually do more to stop lightning? A significant difference exists between stopping and diverting.

Richard Harrison wrote:
> w_tom wrote:
> "Do you think the loop will stop what three miles of sky could not?"
>
> Depends on what kind of loops and how many.
>
> I`ve worked in several broadcast stations that often got struck by
> lightning. Their towers were the tallest things around. None of these
> stations got significant damage from lightning. In addition, none of the
> station equipment powered from the mains or appliances plugged into the

> mains at the station ever was damaged.
>
> All these stations used tower lighting chokes, one coil for each tower
> lighting wire including the neutral going up the tower. Three wires,
> beacon, side lights, and neutral were usually accommodated with tower
> lighting chokes. Their primary function is to avoid sapping any of the
> r-f energy from the tower. Another benefit is that the chokes reject
> lightning too. They are substantial and all turns are wound side by side
> (trifiler?) around a large ceramic coil form. The wire is large enough
> to easily handle the load current. I never worked at a station that used
> Austin tower lighting transformers instead of chokes, but I`ve seen
> enough of them to suppose they must isolate about as well as chokes do.
> One station I worked in had an FM antenna atop one if its AM broadcast
> towers. Its FM coax was coiled at ground level to isolate the AM r-f and
> it rejected lightning too. So, if you have enough of the right turns the
> choke does effectively reject lightning. Inductance is proportional to
> the size of the coil.
>
> Best regards, Richard Harrison, KB5WZI

2582. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 08:16:32 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <p8aa12p3v0hog2hoe5vrcc6epdh33g53oi@4ax.com>
Source record: 63243

On Sun, 12 Mar 2006 20:56:05 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Roy, W7EL wrote:
>"Do the proper substitutionn and you`ll get the correct answer."
>
>Yes. The warning also appears on page 137:
>"In developing the field expressions for the short dipole, which were
>used in obtaining (5-56), (5-56) is the value of radiation resistance,
>the restriction was made that lambda is much larger than the length of
>the dipole L." No problem there, Reg specified a short monopole.
>
>Kraus does a sample calculation for a short dipole. I used Kraus` data
>and got the same answer when duplicating his calculation.
>
>But Reg was not asking for an answer to a specific problem. Reg was
>asking for the value of the constant in a formula of the same form.
>Kraus gives it as 80 pi squared for a dipole.. This is 790.
>
>We know that a monopole has half the resistance of a dipole. Example: 73
>ohms and 36.5 ohms. 790 / 2 = 395. That`s not a resistance, it is only
>the value of a constant which must be multiplied by (L/lambda) squared
>to give the radiation resistance of a very short monopole.
>

Is all that to mean that you used the formula given by Kraus for a short thin dipole and applied your own rule to halve the coefficient.

In your original response you said "395 It is found on page 137 of Kraus` 1950 edition of "Antennas"."

Is that correct, or did you make the number 395 up according to your own rules and then attribute it to Kraus?

Owen
--

2583. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 12:17:19 UTC
From: w8ji@akorn.net
Message-ID: <1142252239.307028.152620@z34g2000cwc.googlegroups.com>
Source record: 63244

jawod wrote:

> If we assume that there is a well matched antenna: twin line to balun,

SWR does not cause ground currents or RFI.

> coax to transceiver. My RF concern was that a long line to ground would
> serve as an antenna to bring RF into shack. If this is not the case, or
> if this is easily dealt with, great.

A long line to the ground definitely WILL act like an antenna, but the effect is absolutely unavoidable.

If you look up national electrical codes you'll see external wires or cable grounds entering a dwelling are supposed to be bonded or grounded to the same ground as the power mains and other utilities. This is primarily to ensure if there is any type of ground fault or surge (i.e. lightning) everything in the house rises at the same rate. You don't want ANY surge current flowing through the house wiring, and bonding grounds outside the house greatly reduces currents through the house. This is called a "common point ground", and it REDUCES ground loops.

Second, amateur gear is not normally UL/CSA approved. It sometimes contains high voltage. High voltage inside a metal box can be a problem. If you get a short from a transformer primary to secondary the case can actually rise to the full amount of high voltage. That voltage can appear on antenna cables (as it can if other components inside the box fail), or between that device and other devices. While not all amateur stations have HV devices, most have line operated equipment. It is possible to have 120VAC appear on cabinets and cables in those devices. Because of this, we should always have an independent safety electrical ground. That ground is required by code to be bonded to the service ground.

That leaves us RF. There are only two things required for RF in the shack prevention.

The first is you use an antenna with a two conductor feedline. It can be coax or twinlead. The antenna system can have ANY SWR, but it must ensure the currents on each conductor of the coax or twinlead are perfectly balanced and 180 degrees out of phase.

http://www.w8ji.com/verticals_and_baluns.htm

If the currents are not balanced, some current will flow back to the power lines, telephone lines, and other connections to the station equipment. The cure for this is really fixing the antenna system.

Although a "RF ground" in the station can cover up the problem, the feedline will still radiate and receive signals.

The second is your station must have a common "ground buss" and all equipment in your station should be bonded to that ground buss. The importance of an external low impedance RF ground on that ground buss is actually very minor. The real importance is that ALL equipment in the shack operate at the same RF potential. In second floor locations I actually laid aluminum foil under carpet for my shack RF ground, the large "plate" acting like a groundplane for RF, but I ALWAYS had an external safety ground. That's because I always ran amplifiers and other equipment that was not UL/CSA listed. Sometimes you just do what you have to do to get on the air.

It's best if you work out any RF problems IF they occur. If it was me, I would not worry about RF problems until they showed. Safety is another issue. If you are dead or the house burns down, it is too late to work on problems.

> The mains box is on the opposite side of the house...that ground is not
> conveniently located.

What you do is up to you. I'm only telling you what the NEC tells us we should do and why. It does NOT mean your insurance will be invalid if you don't follow NEC, it only means they can cancel you. State laws require insurance companies honor policies, but if they find out something isn't safe they can cancel you. Otherwise they can only refuse to pay for fraud or an intentional violation of the agreement you signed.

You station is less safe for lightning and for electrical safety if you don't bond the grounds, but I have had many stations over my lifetime that did not follow that guideline. That's what you should do, and you should do it for electrical and lightning safety.

> My coax will go thru a lightening arrestor (Polyphase) which will be
> earth grounded. If I run a low gauge wire from that earth ground to the
> main box ground, then this is prevents ground loop? What if the
> distance to the mains box is 60 feet?

Yes. It reduces chances of harmful ground loops. I believe you should find that on polyphasers site in technical papers.

Try:

http://www.polyphaser.com/ppc_TD1016.aspx

and other technical papers.

73 Tom

2584. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 12:33:22 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <vcpa12dc23rpi64a3ugg8qimso37j8buga@4ax.com>
Source record: 63245

On Mon, 13 Mar 2006 06:39:03 GMT, "Jerry Martes"
<j.jmartes@verizon.net> wrote:
[snip]

> There are sooo many things I dont know anything about. Raster Ammeter is
>one of the many things I havent even heard about.

Reminds me of my youth. I worked in an automotive parts store back
when you actually had to know something about cars and how to read a
paper catalog. We'd test the new guys by asking them to find a
radiator cap for a Corvair, a set of spark plugs for a Cummins, an oil
pan gasket for a Powerglide transmission....

> I sure would like to learn how to use a Vector Voltmeter.
> Right now, I cant measure impedance (with any confidance of accuracy) when
>their VSWR is below about 1.5 to 1 on a 50 ohm line at 137 MHz.

Have you looked at this?

http://www.k6mhe.com/n7ws/AN77-3.pdf

2585. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 13:01:15 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <v2eRf.589$tN3.104@newssvr27.news.prodigy.net>
Source record: 63246

Richard Clark wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>Use an antenna analyzer, like an MFJ-259B to locate the
>>self-resonant frequency.
>
> Vector VOLTmeter?
> VECtor Voltmeter?!!!
>
> I don' need no stinkin' VECtor VOLTmeter!

Actually, unlike Tom (who rushes in where angels fear to tread) I cannot figure out how to use the VVM to make a valid measurement of what we are trying to measure. If I cannot figure that out, then the VVM won't do me any good as Tom's setup didn't do him any good and just confused him all over again by tricking him into making his measurement in an SWR = 16000:1 environment. I'm truly surprised his standing-wave current delay measurement wasn't zero.

Guess everyone sees the danger in trying to guess what the results of someone else's measurement will be. Tom should have measured something around 15.6 degrees. The fact he didn't sends up a very large red flag.

Another problem is that the delay through the coil changes drastically between bench isolation and being installed directly above a GMC pickup's ground plane because of the enormous increase in coil capacitance to that ground plane. So the delay through the coil needs to be measured in the physical environment in which it is operated. It is virtually impossible to eliminate reflections from a 75m mobile bugcatcher system so the VVM can't measure what we are trying to measure.

The question is: For a well-designed coil, is the self-resonance method valid for determining the delay through a coil at HF frequencies below the self-resonant frequency? Since that's been an accepted way of doing it for more than a century, I don't see how anyone could object.
--
73, Cecil http://www.qsl.net/w5dxp

2586. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 13:09:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <saeRf.590$tN3.56@newssvr27.news.prodigy.net>
Source record: 63247

stananger wrote:

> Robert11 wrote:
>>Anyone have any thoughts on (hopefully not experiences) whether putting a
>>loop of, e.g. 1 foot in diameter,
>>on a coax run from an outdoor receive-only antenna has any merit as far as
>>helping any emf lightning induced pulses from traveling into a house ?

> you been hanging out on 11 meters?

Reminds me of what I once told my secretary back in the 70's.
Our lab soldering irons were simple AC devices with standard
AC cords attached. We tied a half-hitch knot in them and used
that loop to hang them on nails on the wall. I was at the
bench one day and my secretary asked me what the knot was for.
I told her that by tightening the knot, I could regulate the
flow of electrons and thus control the temperature of the
soldering iron. Later that night, over drinks at Charlie
Brown's, she and I had a good laugh about that.
--
73, Cecil http://www.qsl.net/w5dxp

2587. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 13:13:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <SdeRf.591$tN3.246@newssvr27.news.prodigy.net>
Source record: 63248

Richard Harrison wrote:

> Cecil, W5DXP wrote:
> "Does it matter that for a vertical that the length of a dipole
> (L/lambda)squared is different by a factor of 4?"
>
> It doesn`t make a ratio different than two to one in the ratio of
> resistances of the 1/2-wave dipole to the 1/4-wave monopole. We are not
> comparing a monopole that is the the length of a dipole with the dipole.
> We are comparing a monopole that is 1//2 the length of a dipole to the
> dipole when we make the resistance ratio.

Richard, Balanis doesn't say that the 'L' in the monopole
formula is 1/2 the 'L' in the dipole formula. Does Kraus?
--
73, Cecil http://www.qsl.net/w5dxp

2588. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 13:17:34 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OheRf.592$tN3.522@newssvr27.news.prodigy.net>
Source record: 63249

Jerry Martes wrote:
> I feel like Rip Van Winkle. The engineering community has developed a
> whole lot of nice things since I left it in 1969. And, its like I've
> been sleeping for 37 years.

Ever heard of a "Triactuated Multicomplicator"?
--
73, Cecil http://www.qsl.net/w5dxp

2589. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 13:54:41 UTC
From: w8ji@akorn.net
Message-ID: <1142258081.175752.25110@v46g2000cwv.googlegroups.com>
Source record: 63250

Cecil Moore wrote:
> Guess everyone sees the danger in trying to guess what
> the results of someone else's measurement will be. Tom
> should have measured something around 15.6 degrees. The
> fact he didn't sends up a very large red flag.

Translation of what Cecil actually is saying:

"Whenever multiple measurements by independent sources disagree with me
the measurements others made must be wrong."

http://www.w8ji.com/agreeing_measurements.htm

http://www.w8ji.com/mobile_and_loaded_antenna.htm

http://www.w8ji.com/inductor_current_time_delay.htm

2590. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 14:22:24 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <AefRf.555291$qk4.223208@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63251

Richard Harrison wrote:
> Gene Fuller wrote:
> "However, you overlooked the fact that "L" is gifferent for the dipole
> and monopole."
>
> L is not a constant. L is a variable in another part of the formula. The
> difference in radiation resistance between a dipole and a monopole is a
> constant. It equals 2, not 4, not 8, or not 16.
>
> Best regards, Richard Harrison, KB5WZI
>
Richard,

I guess this must be the week for basic math explanations.

Let's try it with numbers.

The equation shown in Kraus "Antennas", 2nd edition, page 216, for the radiation resistance of a short dipole with constant current is:

Rr = 80 pi^2 (L/lambda)^2

80 pi^2 is about 790, so the equation is rewritten as:

Rr = 790 (L/lambda)^2

In the convention used by Kraus, "L" is the total length of the dipole.

I presume the equivalent discussion is contained in the 1950 edition of "Antennas".

As a test case, let's suppose that L is 8 meters, and lambda is 80 meters. We immediately see that Rr is 7.9 ohms.

OK, now take the monopole over perfect ground that Reg mentioned. The monopole length that corresponds to one half of the test case dipole is 4 meters. The radiation resistance of the monopole is 3.95 ohms.

So, the question becomes determining the correct coefficient for the Rr equation. (L/lambda) is now 0.05, not 0.10.

Therefore,

Rr = 3.95 ohms = X (0.05)^2

I believe you will discover that "X" must be 1580.

This is set up using the definitions for L as stated in Kraus (dipole) and as stated by Reg in his monopole query. Of course you can set up

your own rules, but that would be addressing a different problem.

73,
Gene
W4SZ

2591. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 14:45:46 UTC
From: w8ji@akorn.net
Message-ID: <1142261146.942721.125300@z34g2000cwc.googlegroups.com>
Source record: 63252

Gene Fuller wrote:
> This is set up using the definitions for L as stated in Kraus (dipole)
> and as stated by Reg in his monopole query. Of course you can set up
> your own rules, but that would be addressing a different problem.
>
> 73,
> Gene
> W4SZ

Gene,

We don't know each other and it may not mean much, but I'd like to thank you for taking the time to explain things so well to people.

This newsgroup, like any public forum, allows anyone to say almost anything without censorship. Because of that two things none of us like to see will happen:

1.) Incorrect information is posted

2.) People get personal in technical conversations.

I left this newsgroup several years ago because it was becoming too personal. One or two people were making it difficult to work through problems or disagreements, and it just wasn't worth the time.

I see now that activity on the group is way down from what it is. Many of the good people no longer post much and far fewer people ask questions.

Hopefully you wil not give up in disgust, and the newsgroup will turn around.

73 Tom

2592. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:04:25 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv41lp$lt6$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63253

"Roy Lewallen" wrote

> C = 160 * pi^2 ~ 1579.

==========

Thank you Roy.

Reg

2593. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:07:05 UTC
From: richardharrison@webtv.net
Message-ID: <28826-44158A99-847@storefull-3255.bay.webtv.net>
Source record: 63255

Owen Duffy wrote:
"Is that correct---?"

No, I don`t think so.

Kraus` formula is:
Radiation resistance = 80 pi squared L squared

L is the fraction of a WL made by a tiny dipole.

For the same wavelength, a monopole is only 0.5 the length of a dipole and it has 0.5 the radiation resistance.

If we use its length in the formula abbove, the radiation resistance would calculate as only 1/4 that of a dipole because the constant is the same and L squared is 0.5 squared.

I speculrte from the resistance ratio of a normal dipole to a normal monopole that the answer should be 0.5. So I erred by halving the constant. I should have doubled it to offset the quartered answer an unchanged constant would produces when L = 0.5.

My new and improved answer to what the value of C is:

1580

Best regards, Richard Harrison, KB5WZI

2594. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:09:31 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <LWfRf.615$tN3.198@newssvr27.news.prodigy.net>
Source record: 63254

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>Guess everyone sees the danger in trying to guess what
>>the results of someone else's measurement will be. Tom
>>should have measured something around 15.6 degrees. The
>>fact he didn't sends up a very large red flag.

Tom, I am going to ask you some relatively simple technical
questions. If you continue to refuse to answer those
questions, I and the other readers of r.r.a.a will draw
a logical conclusion about your unwillingness or inability
to answer questions, i.e. a non-technical answer or no
answer at all will cause you to lose credibility.

I was wrong about the radiation resistance equation. See
how readily I admitted my mistake? (When was the last time
you admitted a mistake?)

First question is a short one: Please explain why a century
old method of determining the phase shift through a coil by
measuring its self-resonant frequency is not good enough for
you. Do you really expect us to believe that the phase shift
through a well-designed coil can change by 81% from 16 MHz
to 4 MHz?

> Translation of what Cecil actually is saying:
>
> "Whenever multiple measurements by independent sources disagree with me
> the measurements others made must be wrong."

I make mistakes but I seem to be on a solid technical
footing here. A number of readers agree. Maybe you can
convince me and them otherwise if you stop refusing to
answer technical questions about your measurements. Your
100 uH coil is the 8+j2500 ohm load in the following
fixed font example. That's at 3.98 MHz with a Q of 313.

Current probes are at X and Y. How is the following
circuit different from your test setup?

```
+---one wavelength lossless 50 ohm coax-----+
| X
source coil 8+j2500 load
| Y
+-------------------coax braid--------------+
```

The one wavelength of lossless coax doesn't change any values
in the steady-state situation so the current probes at X and
Y read the same value of currents as yours.

The SWR on the coax is about 16000:1. There is virtually
zero net current flowing through the load because of the
extreme mismatch. Virtually all of the current at the coil
is standing-wave current which is known to have unchanging
phase. Roy measured the unchanging phase of standing wave
current and reported close to zero. You measured the
unchanging phase of standing wave current and got close
to zero. It is no wonder you guys get the same value of
current phase delay since you are making exactly the same
error in your measurements spanning a number of years.
I'm surprised that you didn't measure a 0 nS delay.
--
73, Cecil http://www.qsl.net/w5dxp

2595. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:15:38 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <Y7adnU5GbfwKEYjZnZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 63256

Cecil Moore wrote:

> Jerry Martes wrote:
>
>> I feel like Rip Van Winkle. The engineering community has developed a
>> whole lot of nice things since I left it in 1969. And, its like
>> I've been sleeping for 37 years.
>
>
> Ever heard of a "Triactuated Multicomplicator"?

I thought that was three ole farts trying to figger out Ohm's Law :-)

2596. Re: Radiation Resistance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:18:23 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <33gRf.616$tN3.309@newssvr27.news.prodigy.net>
Source record: 63257

w8ji@akorn.net wrote:
> This newsgroup, like any public forum, allows anyone to say almost
> anything without censorship. Because of that two things none of us like
> to see will happen:
>
> 1.) Incorrect information is posted

By gurus as well as everyone else. I asked some technical
question in another posting, Tom. In the past, you simply
ignored my technical questions by trimming them from my
posting and then you objected to my style which is all
that was left.

Let's see if you are still unwilling to answer my technical
questions one of which is:

Why isn't a century old method of determining the phase
shift (delay) through a coil by measuring the self-
resonant frequency good enough for you? How do you
explain an 81% difference between this old accepted
method and your recently measured results?
--
73, Cecil http://www.qsl.net/w5dxp

2597. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 15:36:48 UTC
From: richardharrison@webtv.net
Message-ID: <28826-44159190-848@storefull-3255.bay.webtv.net>
Source record: 63258

W_Tom wrote:
"How does a microhenry stop or divert lightning?"

Alone, not effectively. I think "driploops" are almost usless in lightning protection.

W_Tom is right. You need to make a path unattractive to protect and divert the lightning to an easier path to earth.

Best regards, Richard Harrison, KB5WZI

2598. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 16:23:32 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142267012.178739.78660@e56g2000cwe.googlegroups.com>
Source record: 63259

I disagree unless yoiu are specipically adressing the yagi design
which
is an explanation in terms of vectors.However an element radiates a
field
not a vector. To 'maximise' the redirection of rear field generation
requires
multi "reflectors" or a dish to capture all the rear radiation. Tho a
dish is used
for micro wave frequencies it can be simulated by multi reflectors
aranged in
parabolic form. This method is not as mechanically feasable as the Yagi
but does
illustrate the effectiveness of a "refletor" versus a "director" in
terms of "efficiency"
or "effectivenes" ala, the two element yagi..when viewed as a mesh
cuircuit assembly.
and reradiator ((reflector) longer physical length is not a
necessity.as implicated by the Yagi inline design.

Art

w8ji@akorn.net wrote:
> chris wrote:
>
> >Why (or how) does the
> > longer
> > element "reflect" the radio wave,
>
> A reflector does not reflect anything. It reradiates.
>
> When a element is self-resonant it reradiates with 180 degree phase
> inversion.
>
> Spacing from the driven element causes a phase delay. Lets say that
> spacing is 90 degrees.
>
so, on many multi-element Yagi designs, the norm seems to be just one
> > reflector, and many director elements. Does this mean that the
> > reflector is more "effective" than the directors at modifying the
> > radiation field?
>
> No.
>
> Once something removes energy form the rear, there is no more energy to
> excite and further elements. You can't excite additional reflectors

> because there is no energy there to excite them, and so they become
> useless hunks of metal without much current.

>
> 73 Tom

2599. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 16:39:53 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <0s7b12t5p54uombe65qt0h8n9sulc439pt@4ax.com>
Source record: 63260

On Mon, 13 Mar 2006 13:01:15 GMT, Cecil Moore <mycall@arrl.net> wrote:
from:
>I cannot figure out how to use the VVM to make a valid measurement
it illogically follows that:
>It is virtually impossible to eliminate reflections from a 75m mobile bugcatcher
>system so the VVM can't measure what we are trying to measure.
aside from the poor grammar - the two statements are consistent to
inability.

2600. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 17:20:15 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <Gu6dnU8ENbbjNYjZnZ2dnUVZ_smdnZ2d@adelphia.com>
Source record: 63261

Cecil Moore wrote:
(snip)
> The question is: For a well-designed coil, is the self-
> resonance method valid for determining the delay through
> a coil at HF frequencies below the self-resonant frequency?

Yes, that is an excellent question.

> Since that's been an accepted way of doing it for more
> than a century,

This is a conclusion I have not seen you support, except with repeated assertions. Can you offer something more substantial? Surely a few references have accumulated in that century. How did you learn about this as the accepted way?

> I don't see how anyone could object.

Man, what I don't see, could almost fill a universe.
But I don't use it to try to win arguments.

2601. ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 17:39:37 UTC
From: Big Nose <massivehooter@hotmail.co.uk>
Message-ID: <1142271577.733440.280370@p10g2000cwp.googlegroups.com>
Source record: 63262

Currently I am looking into the problem of using a common antenna for two VHF transceivers. One operates 30 - 90 MHz and the other from 30 - 512 MHz. They would both be tuned into seperate frequencies and need to share a common broadband, omni directional, vertical monopole.

I think I am getting myself a bit confused (or should I say more confused), do I need to used a diplexer? Would a T piece not suffice as both sets would be tuned to different frequencies and seperation and harmonics would be considered? Would these factors not mean that the input impedance to the set tuned into the different frequency would remain high thus not effect matching?

2602. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 17:45:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QciRf.174$4L1.162@newssvr11.news.prodigy.com>
Source record: 63263

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>
>>Guess everyone sees the danger in trying to guess what
>>the results of someone else's measurement will be. Tom
>>should have measured something around 15.6 degrees. The
>>fact he didn't sends up a very large red flag.
>
> Translation of what Cecil actually is saying:
> "Whenever multiple measurements by independent sources disagree with me
> the measurements others made must be wrong."

Other multiple measurements by independent sources agree with
me and disagree with you, Tom. Wonder why you neglected to post
this reference from your own server?

http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html

It is a posting to TowerTalk by Jim Lux, W6RMK. I'll just extract
some excerpts.

"For closewound coils, with length to diameter ratios around 5:1, a
series of fairly careful measurements have been made with the coils
arranged vertically above a ground plane, fed at the base, with a
capacitive load on the other end, and the driving frequency arranged
to be at the resonant frequency of the whole assembly."

Sure sounds like your 100 uH 10"x2" coil installed in a mobile ham
radio antenna environment.

"In most cases, the phase shift in the current at top and bottom [of
the coil] was on the order of 10-20 degrees."

Contrary to the assertions of W8JI. Funny, I predicted 16 degrees for
your coil on 4 MHz based on the self-resonant frequency.

"For inductance the signficant thing is that the magnetic field of
one segment pretty much links to the adjacent segments, and less so
for the rest."

Contrary to the assertions of W8JI.

"At this time, the models are sufficiently well developed that they
predict the actual currents and voltages to substantially better than
one percent ..."

As opposed to W8JI's "accuracy".

"The take home message here, regarding loading coils, is that simple lumped approximations of a loading coil may do just fine for an initial design cut, but do not adequately reflect reality."

"I think it's best to leave it at: Loading coils are not isolated lumped elements and cannot be modeled as such."

To which I add: Since a lumped element model is a subset of the distributed network model, if the lumped element results disagree with the distributed network results, the lumped element results are simply invalid.
--
73, Cecil http://www.qsl.net/w5dxp

2603. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 17:53:49 UTC
From: richardharrison@webtv.net
Message-ID: <16559-4415B1AD-858@storefull-3256.bay.webtv.net>
Source record: 63265

Cecil, W5DXP wrote:
"Please explain why a centuries old method of determining phase shift through a coil by measuring its self-resonant frequency is not good enough for you?"

A coil is an RLC circuit. At resonance, L offsets C and all that is left is R. In a resistance, the current is in-phase with the applied voltage.

But, in a physical length of a tuned circuit or in a straight conductor in its place, in a circuit with reflections, you have energy coming from both directions creating an interference pattern, which is repeated every 1/2-wave (180-degrees) in the line Peaks are 1/2-wave apart, considering the velocity factor of the line. To determine the phase shift, count the maxima.

The wavelength of a line is the distance a wave must travel for one complete cycle (360-degrees). If you want the phase shift for a line, take the length of line required for one degree of phase retardation and multiply it by the length of line you have.

Best regards, Richard Harrison, KB5WZI

2604. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 17:57:25 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9oiRf.176$4L1.60@newssvr11.news.prodigy.com>
Source record: 63264

John Popelish wrote:

> Cecil Moore wrote:
>> Since that's been an accepted way of doing it for more
>> than a century,
>
> How did you learn about this as the accepted way?

I'm a part-time teacher and it is described in a physics history book that is, unfortunately, at work. Interesting book as it gives a biographical treatment of the major famous physicists from Galileo to Einstein. The Maxwell and Heavyside sections are particularly interesting to me.

For more information, take a look at:

http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html
--
73, Cecil http://www.qsl.net/w5dxp

2605. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:23:05 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <r1db129fb067m4mpd054cutulo5t7rhj2k@4ax.com>
Source record: 63267

On Mon, 13 Mar 2006 12:20:15 -0500, John Popelish <jpopelish@rica.net>
wrote:

>> The question is: For a well-designed coil, is the self-
>> resonance method valid for determining the delay through
>> a coil at HF frequencies below the self-resonant frequency?
>
>Yes, that is an excellent question.
>
>> Since that's been an accepted way of doing it for more
>> than a century,
>
>This is a conclusion I have not seen you support, except with repeated
>assertions. Can you offer something more substantial? Surely a few
>references have accumulated in that century. How did you learn about
>this as the accepted way?

Hi John,

Well, I for one note that your call for a reference to that one point
(coil self resonance) was met by a "link" to a mailing list on another
point (assembly self resonance).

Be that as it may.

What we do find at that "link" has a rather condemnatory admission:
>>Amateur antennas vary so much in installation and
>>design that a rigorous treatment of one case
That case being a Tesla coil SECONDARY which is notably tight wound
>>would not, in general, be applicable to others.
which quite defines the coils offered here, and are admitted to in the
first words of this sentence.

The thread may now diverge towards Tesla secondary coils and away from
your "well-designed" coil.

SOP

73's
Richard Clark, KB7QHC

2606. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:25:27 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <vZGdne4RZOdaKojZnZ2dnUVZ_tWdnZ2d@adelphia.com>
Source record: 63266

Cecil Moore wrote:
(snip)
> Other multiple measurements by independent sources agree with
> me and disagree with you, Tom. Wonder why you neglected to post
> this reference from your own server?
>
> http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html
>
> It is a posting to TowerTalk by Jim Lux, W6RMK. I'll just extract
> some excerpts.
>
> "For closewound coils, with length to diameter ratios around 5:1, a
> series of fairly careful measurements have been made with the coils
> arranged vertically above a ground plane, fed at the base, with a
> capacitive load on the other end, and the driving frequency arranged
> to be at the resonant frequency of the whole assembly."
>
> Sure sounds like your 100 uH 10"x2" coil installed in a mobile ham
> radio antenna environment.
(snip)

The tantalizing part from my perspective is this:

"The measurements were made with carefully designed fiberoptic probes
that were specifically designed to avoid perturbing the magnetic and
electric fields."

I would like to read a full description of this instrumentation.

2607. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:29:54 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <8q-dne87b82CJ4jZ4p2dnA@comcast.com>
Source record: 63268

Art, not to split hairs, or separate bone from marrow, but a single reflector, well dimensioned, and well phased provides more than -20 dB null in the reverse direction. That is less than 1% of the radiated energy goes 'backwards' [99% goes forward]. I'm not claiming the multi-element solution for optimum null, but for us poor hams 1% seems quite good enough.

art wrote:
> I disagree unless yoiu are specipically adressing the yagi design
> which
> is an explanation in terms of vectors.However an element radiates a
> field
> not a vector. To 'maximise' the redirection of rear field generation
> requires
> multi "reflectors" or a dish to capture all the rear radiation. Tho a
> dish is used
> for micro wave frequencies it can be simulated by multi reflectors
> aranged in
> parabolic form. This method is not as mechanically feasable as the Yagi
> but does
> illustrate the effectiveness of a "refletor" versus a "director" in
> terms of "efficiency"
> or "effectivenes" ala, the two element yagi..when viewed as a mesh
> cuircuit assembly.
> and reradiator ((reflector) longer physical length is not a
> necessity.as implicated by the Yagi inline design.
>
> Art
>
> w8ji@akorn.net wrote:
>
>>chris wrote:
>>
>>
>>>Why (or how) does the
>>> longer
>>>element "reflect" the radio wave,
>>
>>A reflector does not reflect anything. It reradiates.
>>
>>When a element is self-resonant it reradiates with 180 degree phase
>>inversion.
>>
>>Spacing from the driven element causes a phase delay. Lets say that

>>spacing is 90 degrees.
>>
>
> so, on many multi-element Yagi designs, the norm seems to be just one
>
>>>reflector, and many director elements. Does this mean that the
>>>reflector is more "effective" than the directors at modifying the
>>>radiation field?
>>
>>No.
>>
>>Once something removes energy form the rear, there is no more energy to
>>excite and further elements. You can't excite additional reflectors
>>because there is no energy there to excite them, and so they become
>>useless hunks of metal without much current.
>
>
>>73 Tom
>
>

2608. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:33:39 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <2ldb125et5j4cgg3l9ogu153t1agkplbl5@4ax.com>
Source record: 63270

On Sun, 12 Mar 2006 10:59:56 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>Anyone have any thoughts on (hopefully not experiences) whether putting a
>loop of, e.g. 1 foot in diameter,
>on a coax run from an outdoor receive-only antenna has any merit as far as
>helping any emf lightning induced pulses from traveling into a house ?
>
>Have heard about this, but it's hard to believe it would actually do
>anything in practice.
>But,... ?

Your station can be thought of as a cluster of "black boxes" with
interfaces (eg power, audio in, rx RF in, control, etc) that are
suceptible to damage if large voltages are impressed across those
interfaces.

Hardening a station against lightning usually involves minimising the
voltage impressed across those interfaces in the event of lightning,
and two main approaches are followed (usually together):
1. - reducing the current that enters the station in a strike; and
2. - reducing the voltage drop in conductors within the station that
would cause high voltages across interfaces.

Item 1 is usually done by diverting the bulk of the lightning current
via an alternate path to ground. This means shunting the current
through a low impedance path to ground before it enters the station.
Series impedance on the path to the station may assist in increasing
the portion of the strike current that flows by the alternate shunt
path to ground, but series impedance without the upstream shunt path
is not likely to have much effect. The series impedance you propose is
very small, so its effect will be quite limited.

Item 2. is usually addressed by the design of the earthing system and
equipotential bonding (eg single point earthing).

In summary, a one turn loop in the coax alone is not going to provide
a significant improvement in lightning protection in a station that is
not otherwise hardened against lightning or EMP.

Owen
--

2609. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:37:16 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ReKdnZjODrYWJ4jZnZ2dnUVZ_tednZ2d@adelphia.com>
Source record: 63269

Cecil Moore wrote:

> For more information, take a look at:
>
> http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html

Very interesting, but not enough information to allow me to repeat
their measurements.

I also note that the opening statement:

"For closewound coils, with length to diameter ratios around 5:1, a
series of fairly careful measurements have been made with the coils
arranged vertically above a ground plane, fed at the base, with a
capacitive load on the other end, and the driving frequency arranged
to be at the resonant frequency of the whole assembly."

This definitely specifies only a single frequency for the test. While
it is not the self resonant frequency of the coil alone, it is
definitely a resonant situation, where there will be a considerable
standing wave through the coil. So I don't see how this reference
supports your claim that measuring the delay at resonance tells you
the delay at other frequencies. It also contradicts your claim about
how a standing wave makes it difficult to measure the current delay
through the coil. What have I missed?

2610. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 18:53:22 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CcjRf.652$tN3.648@newssvr27.news.prodigy.net>
Source record: 63271

Richard Harrison wrote:
> The wavelength of a line is the distance a wave must travel for one
> complete cycle (360-degrees). If you want the phase shift for a line,
> take the length of line required for one degree of phase retardation and
> multiply it by the length of line you have.

If you want to know the velocity factor of a piece of
transmission line, the easiest thing to do is find
its first self-resonant frequency. A little math
will yield the VF which allows prediction of the
phase shift through any reasonable length of
tranmission line.

If you want to know the velocity factor of a coil,
the easiest thing to do is find its first self-
resonant frequency. A little math will yield the
VF of the coil which allows prediction of the
phase shift through any reasonable length of coil.

Not disagreeing - just expanding.
--
73, Cecil http://www.qsl.net/w5dxp

2611. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:06:38 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <vesge3-433.ln1@p400bob.personal.cox.net>
Source record: 63184

I'll let others delve into the real depths here...

It is possible (some would say likely) that if you dont separate the radios by some antenna line filtering (eg diplexer) one transmitter could damage the others receiver. This will happen even if they are on differing frequencies because it is likely the first amplifying device in line will be made to work across a broad range of frequencies. There is a good chance that you may not notice the damage if the signals you normally listen to are strong, only to find that the blown front device is needed when they get weak.

If you wanted to consider a diplexer you have another big problem in that your operating frequencies overlap and are very wide. Most of these filters tend to work on a fairly narrow band or widely separated wider bands. If you segment the transceivers to specific operating frequencies you can bet that one day you'll want to use the "wrong" transceiver...

You also want to retain a good antenna/transceiver line match. Adding a T piece and more equipment tends to upset that somewhat. The (extra) coax length itself will be a load that best case will reduce the effective power output.

The input impedance of the receiver wont vary as a fucntion of the receiver operating frequency. Unless of course there is some front end filtering which is switched in and out. (Thats unusual nowadays - not having filters keeps the cost down)

I'd suggest that a cheaper path is to use 2 antennas as a diplexer/filter system will be quite expensive. The other way to do it might be via coaxial relays that switched the unused receiver antenna to an attenuator or "open" whilst the other radio is transmitting. This would take some figuring because you want the relays to changeover before the radio starts transmitting.

Hope this is of some help.

Cheers Bob

Big Nose wrote:
>
> Currently I am looking into the problem of using a common antenna for
> two VHF transceivers. One operates 30 - 90 MHz and the other from 30 -
> 512 MHz. They would both be tuned into seperate frequencies and need
> to share a common broadband, omni directional, vertical monopole.
>
> I think I am getting myself a bit confused (or should I say more
> confused), do I need to used a diplexer? Would a T piece not suffice

> as both sets would be tuned to different frequencies and seperation and
> harmonics would be considered? Would these factors not mean that the
> input impedance to the set tuned into the different frequency would
> remain high thus not effect matching?
>

2612. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:10:24 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <07mdnQ9xiNzNX4jZ4p2dnA@adelphia.com>
Source record: 63272

Cecil Moore wrote:

> If you want to know the velocity factor of a piece of
> transmission line, the easiest thing to do is find
> its first self-resonant frequency. A little math
> will yield the VF which allows prediction of the
> phase shift through any reasonable length of
> tranmission line.
>
> If you want to know the velocity factor of a coil,
> the easiest thing to do is find its first self-
> resonant frequency. A little math will yield the
> VF of the coil which allows prediction of the
> phase shift through any reasonable length of coil.

If the inductor in question does not take much advantage of mutual induction across its length nor has much capacitance across its length (say, a straight conductor, strung with ferrite toroids), then I can see the similarity with a transmission line. But as the inductor approaches a lumped inductance with significant inter winding capacitance and mutual inductance coupling the current across a significant part of its winding length, I see on reason to assume the transmission line method (delay independent of frequency) strictly applies. It might, but it would take more than you saying so to assure me that it is a fact.

In other words, transmission line concepts like uniform inductance per length and uniform capacitance per length get rather muddled in a real inductor.

2613. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:11:00 UTC
From: aRKay <REMOVEarkay@qsl.net>
Message-ID: <REMOVEarkay-CBC523.13105913032006@newsclstr02.news.prodigy.com>
Source record: 63273

In article <4414a523_1@newsfeed.slurp.net>,
"Bill Turner" <noway@nohow.com> wrote:

> The word was "resonactor". I have one of his antennas and it works
> fine.
>
> I have not examined the resonactor in detail, but I believe it is just
> an inductor which is carefully wound to be self-resonant at the desired
> frequency, thereby eliminating the need for a separate capacitor to
> resonate it. A clever idea, since eliminating the separate capacitor
> easily allows full legal power without the expense of a very high
> voltage capacitor.
>
> W9INN's trap dipoles are the only ones I know of which advertise full
> legal power handling, and that's why I purchased one. I've been running
> full power RTTY on mine for five years with no problems.
>
> Since I purchased mine there may have been other full power trap
> dipoles come on the market. If anyone knows of one, please reply. I'm
> always curious about such things.
>
> Bill, W6WRT

Bill,

That for the memory jog... the correct term W9INN used was resonactor
and like you said it works FB with or without power. My two resonactors
have been in use since 1978 at three different locations.

73, Dick AA5VU

2614. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:26:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <mHjRf.658$tN3.375@newssvr27.news.prodigy.net>
Source record: 63274

Richard Clark wrote:
> Well, I for one note that your call for a reference to that one point
> (coil self resonance) was met by a "link" to a mailing list on another
> point (assembly self resonance).

Give us a break, Richard. Those two subjects were in different
paragraphs and completely unrelated. I looked up the reference
and it is, "The Great Physicists From Galileo To Einstein,
Biography of Physics", by George Gamow, (ISBN: 0486257673)
I was going to furnish that information on Thursday when I
go back to work.
--
73, Cecil http://www.qsl.net/w5dxp

2615. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:34:01 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142278441.234025.156870@z34g2000cwc.googlegroups.com>
Source record: 63275

I read the question as referring to total radiation and not a specific
angle that you referred to.
With respect to a single reflector it is obviouslythe most significant
addition to a dipole (efficiency
addition if you like)and additional elements added follow a declining
level of addition ofredirected energy (binomial) which I took as his
question. The other questions he raised were follow ups on the yagi
design which fits nicely to the vector style explanation without going
to deep into true antenna radiation thus raising the question of
reflector "length" It really is the same as explaning
"skin depth" without reference toi "volume" or capacitance that does
not refer to "skin depth",.
Most who ask a question may well accept "thats the way it is" but the
gentleman asked the question with respect to reflector length because
of yagi type explanations, which does not "fit"
with all arrays which are actually meshed cuircuits and more difficult
to address.
I have no quarrel with the choice of a two element antenna in the real
world because as Moxon states it is simpler and more rewarding to raise
a two element antenna than to make a three element antenna BUT
it depends on the end parameters that you require which if not stated
lead to perennial radio antenna arguements which plague forums.
Nuff said Art

2616. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:34:08 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142278448.744063.92640@i40g2000cwc.googlegroups.com>
Source record: 63176

I read the question as referring to total radiation and not a specific
angle that you referred to.
With respect to a single reflector it is obviouslythe most significant
addition to a dipole (efficiency
addition if you like)and additional elements added follow a declining
level of addition ofredirected energy (binomial) which I took as his
question. The other questions he raised were follow ups on the yagi
design which fits nicely to the vector style explanation without going
to deep into true antenna radiation thus raising the question of
reflector "length" It really is the same as explaning
"skin depth" without reference toi "volume" or capacitance that does
not refer to "skin depth",.
Most who ask a question may well accept "thats the way it is" but the
gentleman asked the question with respect to reflector length because
of yagi type explanations, which does not "fit"
with all arrays which are actually meshed cuircuits and more difficult
to address.
I have no quarrel with the choice of a two element antenna in the real
world because as Moxon states it is simpler and more rewarding to raise
a two element antenna than to make a three element antenna BUT
it depends on the end parameters that you require which if not stated
lead to perennial radio antenna arguements which plague forums.
Nuff said Art

2617. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:39:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121biitcvt2a85@corp.supernews.com>
Source record: 63177

John Popelish wrote:
>
> If the inductor in question does not take much advantage of mutual
> induction across its length nor has much capacitance across its length
> (say, a straight conductor, strung with ferrite toroids), then I can see
> the similarity with a transmission line. But as the inductor approaches
> a lumped inductance with significant inter winding capacitance and
> mutual inductance coupling the current across a significant part of its
> winding length, I see on reason to assume the transmission line method
> (delay independent of frequency) strictly applies. It might, but it
> would take more than you saying so to assure me that it is a fact.
>
> In other words, transmission line concepts like uniform inductance per
> length and uniform capacitance per length get rather muddled in a real
> inductor.

Tom W8JI posted a good description and summary of inductor operation a little while ago, but it looks like it could bear repeating, perhaps with a slightly different slant.

In a transmission line, a field at one end of the line requires time to propagate to the other end of the line. As the EM fields propagate, they induce voltages and currents further down the line, which create their own EM fields, and so forth. These propagating fields and the currents and voltages they produce make the whole concept of traveling voltage and current waves useful and meaningful.

But in a tightly wound inductor, a field created by the current in one turn is coupled almost instantly to all the other turns (presuming that the coil is physically very small in terms of wavelength). Consequently, output current appears very quickly following the application of input current. The propagation time is nowhere near the time it would take for the current to work its way along the wire turn by turn.

Once again it's necessary to point out that I'm speaking here of an inductor which has very good coupling between turns and minimal field leakage or radiation, for example a toroid. If you make an air wound inductor and slowly stretch it out until it's nothing more than a straight wire, it'll begin by resembling the toroid -- more or less, depending on how well coupled the turns are and how much its field interacts with the outside world -- then slowly change its characteristics to resemble a straight wire. There's no magic transition point. So by choosing the inductor, you can observe behavior anywhere along this continuum.

Roy Lewallen, W7EL

2618. Coax To Coax Noise transfer ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:44:08 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <itidnXfpgJIbVojZRVn-sw@comcast.com>
Source record: 63178

Hello:

Am about to start stringing some coax from an outside Receive-Only antenna's Balun up to
my study where the receiver is. (30 MHz on down listening)

The easiest thing for me is to run it alongside an existing (looks like coax, but am not sure) wire
that Comcast has strung for my broadband service to the PC. Actually to their always-on modem which is then
connected to the PC.

Was wondering about coax to coax noise transfer into the receiving antennas coax from being right alongside
this Comcast stuff.

Think there's any reason for concern ?

If so, worth the trouble to find a new route for the receiving antenna's coax ?

Thanks,
Bob

2619. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:44:19 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <121bisltdp0m6ef@corp.supernews.com>
Source record: 63179

John Popelish wrote:

> Cecil Moore wrote:
> (snip)
>
>> Other multiple measurements by independent sources agree with
>> me and disagree with you, Tom. Wonder why you neglected to post
>> this reference from your own server?
>>
>> http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html
>>
>> It is a posting to TowerTalk by Jim Lux, W6RMK. I'll just extract
>> some excerpts.
>>
>> "For closewound coils, with length to diameter ratios around 5:1, a
>> series of fairly careful measurements have been made with the coils
>> arranged vertically above a ground plane, fed at the base, with a
>> capacitive load on the other end, and the driving frequency arranged
>> to be at the resonant frequency of the whole assembly."
>>
>> Sure sounds like your 100 uH 10"x2" coil installed in a mobile ham
>> radio antenna environment.
>
> (snip)
>
> The tantalizing part from my perspective is this:
>
> "The measurements were made with carefully designed fiberoptic probes
> that were specifically designed to avoid perturbing the magnetic and
> electric fields."
>
> I would like to read a full description of this instrumentation.

Like many others I don't know everything. In line with reducing my
ignorance could you amplify on how the phenomena is measured with a
"fiber optic probe". What type of transducer is used to convert energy
of an electrical nature to energy of an optical nature with out
"perturbing the magnetic and electric fields".

Dave WD9BDZ

2620. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:50:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <62kRf.659$tN3.307@newssvr27.news.prodigy.net>
Source record: 63180

John Popelish wrote:
> I also note that the opening statement:
>
> "For closewound coils, with length to diameter ratios around 5:1, a
> series of fairly careful measurements have been made with the coils
> arranged vertically above a ground plane, fed at the base, with a
> capacitive load on the other end, and the driving frequency arranged to
> be at the resonant frequency of the whole assembly."
>
> This definitely specifies only a single frequency for the test.

Yes, a 75m mobile base-loaded antenna is a single frequency
antenna. Why are you surprised? Those guys have figured out
something that I haven't, probably because they have better
tools at their disposal than I do. They seem to have a 1%
accurate model at frequencies other than the self-resonant
frequency. I, OTOH, am only sure of my accuracy at the
self-resonant frequency due to the limited tools at my
disposal.

> So I don't see how this reference
> supports your claim that measuring the delay at resonance tells you the
> delay at other frequencies. It also contradicts your claim about how a
> standing wave makes it difficult to measure the current delay through
> the coil. What have I missed?

You missed the complete point, John. If one cannot eliminate
reflections from the measuring process, then use them to your
advantage in the measurements. Self-resonance means that the
forward wave is in phase with the reflected wave. The first
time that happens is when the wave has made a 180 degree round
trip to the tip of the antenna and back, i.e. it happens first
at self-resonance, when the coil is electrically 90 degrees
long. For a well-designed coil, like a well-designed transmission
line, it doesn't vary by much over HF frequencies. In short,
the self-resonance velocity factor should extend pretty well
to all HF frequencies below that self-resonance point. I need
to think about the frequencies above the self-resonance point,
but that doesn't apply to the present discussion.

I guess I should re-phrase my statement. Standing waves make
it difficult for *ME* and W8JI to measure the current delay
through the coil. I ran essentially the exact experiment that
W8JI ran with identical results. I even used the current pickups
that W8JI kindly furnished to me. The only difference between

W8JI and me is that I recognized the results to be bogus.
--
73, Cecil http://www.qsl.net/w5dxp

2621. Re: Coax To Coax Noise transfer ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:56:37 UTC
From: dplatt@radagast.org
Message-ID: <121bjjll54og800@corp.supernews.com>
Source record: 63182

In article <itidnXfpgJIbVojZRVn-sw@comcast.com>,
Robert11 <rgsros@notme.com> wrote:

>Hello:
>
>Am about to start stringing some coax from an outside Receive-Only antenna's
>Balun up to
>my study where the receiver is. (30 MHz on down listening)
>
>The easiest thing for me is to run it alongside an existing (looks like
>coax, but am not sure) wire
>that Comcast has strung for my broadband service to the PC. Actually to
>their always-on modem which is then
>connected to the PC.
>
>Was wondering about coax to coax noise transfer into the receiving antennas
>coax from being right alongside
>this Comcast stuff.
>
>Think there's any reason for concern ?

If the Comcast cable was installed properly, there shouldn't be a
problem. Coax cable with high-quality shielding leaks very little
signal, and the cable companies have to use well-shielded cable in
their plants in order to avoid leakage of channels whose fall into the
airband, amateur, and public-safety allocations.

Also, I don't think that Comcast's plant is likely to carry much, if
any content below 30 MHz.

There's some possibility, I suppose, of some leakage of noise from the
cable modem itself back up along the outside of the Comcast coax. You
might want to consider buying a few snap-on interference-suppression
ferrites, and snap 'em onto the outside of both cables (e.g. where the
Comcast cable leaves the building, where your receiver coax enters the
building, and maybe a few more scattered along one or both coaxes).
This would help block or dissipate any RF currents flowing on the
outsides of the coaxes.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

2622. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 19:56:50 UTC
From: chuck <nospam@nospam.net>
Message-ID: <68kRf.3771$k75.1205@newsread3.news.atl.earthlink.net>
Source record: 63181

David,

Could it be something as simple as the use of a fiber optic cable as an alternative to a shielded coax cable? I suspect the "without perturbing . . ." part may be innocent overstatement. Wish I had a set of high-frequency probes with fiber optic cables!

Chuck

David G. Nagel wrote:
> John Popelish wrote:
>
>> Cecil Moore wrote:
>> (snip)
>>
>>> Other multiple measurements by independent sources agree with
>>> me and disagree with you, Tom. Wonder why you neglected to post
>>> this reference from your own server?
>>>
>>> http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html
>>>
>>>
>>> It is a posting to TowerTalk by Jim Lux, W6RMK. I'll just extract
>>> some excerpts.
>>>
>>> "For closewound coils, with length to diameter ratios around 5:1, a
>>> series of fairly careful measurements have been made with the coils
>>> arranged vertically above a ground plane, fed at the base, with a
>>> capacitive load on the other end, and the driving frequency arranged
>>> to be at the resonant frequency of the whole assembly."
>>>
>>> Sure sounds like your 100 uH 10"x2" coil installed in a mobile ham
>>> radio antenna environment.
>>
>>
>> (snip)
>>
>> The tantalizing part from my perspective is this:
>>
>> "The measurements were made with carefully designed fiberoptic probes
>> that were specifically designed to avoid perturbing the magnetic and
>> electric fields."
>>
>> I would like to read a full description of this instrumentation.
>

>
>
> Like many others I don't know everything. In line with reducing my
> ignorance could you amplify on how the phenomena is measured with a
> "fiber optic probe". What type of transducer is used to convert energy
> of an electrical nature to energy of an optical nature with out
> "perturbing the magnetic and electric fields".
>
>
> Dave WD9BDZ

2623. Re: Dipole Extension (done)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 20:04:46 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <yfkRf.330$HW2.75@newsread3.news.pas.earthlink.net>
Source record: 63183

Bottom posted...

"Dick, AA5VU" <aa5vuNOSPAM@arrl.net> wrote in message
news:aa5vuNOSPAM-76F3DC.19575711032006@newsclstr02.news.prodigy.com...
> In article <2%HQf.12296$wH5.7544@trnddc02>,
> "Dale Parfitt" <par@parelectronics.com> wrote:
>
> > Absolutely zero reason to place that wire in series with the dipole- in
fact
> > it will not yield the same results if you do so- you will end up having
to
> > redo the length. It will also mechanically weaken the antenna and also
> > change 80M resonance. There is no current in that short stub-i.e. no
effect
> > on radiation. Let it dangle.
> > Dale W4OP
>
> Thanks..... going to let it dangle. Not hurting anything and it has a
> good attachment.

Hi Dick,

Dale has got it EXACTLY right here! Variable-length stubs from the
inboard screws on the "resonactors" is how Bill (W9INN) INTENDED
his antennas to be tuned! He called this--logically enough--"stub tuning."

The obvious advantages of stub tuning are:
1. It's much easier than changing the length of the primary antenna wire,
and
2. The two (or more) bands can be adjusted INDEPENDENTLY of each
other; i.e., changing the length of the 40m stubs does not affect 80m
tuning; and changing the length of the 80m stubs does not affect 40m
tuning.

This is absolutely the right way to build dipoles in which precise tuning of
resonance is desired.

Now that you've got your 40m resonance set to mid-band, you're pretty
much done on 40m; you can get the full band under 2:1.

But 80m is another story. Because of the "resonactor" loading (which
conveniently reduces overall length), your 2:1 BW is probably 90 to 140 kHz.
By changing the 80m stubs, you can put this wherever you want in the 80m
band; but it's still pretty narrow.

I made a small mod on my W9INN 80/40/17 dipole by putting Rat Shack
banana sockets on the ends of the primary 80m stubs. This enables me to

swap stubs (each with its own banana plug), to move the 80m resonance around in the band. Because my antenna is in an inverted vee configuration with fairly low ends, it's easy for me to change the stub(s).

My normal tuning point is 3950 kHz, where I get 1:1 SWR. To move to 3850 kHz, I plug in ONE stub of appropriate length. (Absolute mechanical symmetry isn't necessary; in fact, asymmetry in the preferred direction can actually lower SWR.) It takes me 90 seconds to go from my second-floor shack out to the antenna, make the change, and come back again.

Naturally, the WX is sometimes such that I don't want to go outside and play with stubs. That's one reason I just replaced my trusty W9INN with a Buckmaster OCF; but the Buckmaster is a subject for another thread.

73, Ed, W6LOL

2624. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 20:11:31 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <bekb12thqp0qklt8ksuve085jfidst8d15@4ax.com>
Source record: 63185

On Mon, 13 Mar 2006 19:26:10 GMT, Cecil Moore <mycall@arrl.net> wrote:
> Those two subjects were in different paragraphs and completely unrelated.
'xactly my point.

2625. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 20:44:31 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <PQkRf.668$tN3.422@newssvr27.news.prodigy.net>
Source record: 63186

David G. Nagel wrote:
> Like many others I don't know everything. In line with reducing my
> ignorance could you amplify on how the phenomena is measured with a
> "fiber optic probe". What type of transducer is used to convert energy
> of an electrical nature to energy of an optical nature with out
> "perturbing the magnetic and electric fields".

Like you (unlike W8JI) I don't know everything. :-) I have
hardly any idea how they used a "fiber optic probe" to make
their measurements. I suspect they superposed local RF phasors
and used a fiber optic system to report the results. That's
what I would do.

I have invited Jim, W6RMK, to join the discussion. Maybe
he can answer your questions.
--
73, Cecil http://www.qsl.net/w5dxp

2626. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 20:45:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <WRkRf.670$tN3.118@newssvr27.news.prodigy.net>
Source record: 63187

Roy Lewallen wrote:
> But in a tightly wound inductor, a field created by the current in one
> turn is coupled almost instantly to all the other turns ...

"All the other turns"? Here's what Jim Lux, W6RMK, had to say
about that:

"For inductance the signficant thing is that the magnetic field
of one segment pretty much links to the adjacent segments, and
less so for the rest."

Less to the 3rd, less than that to the 4th, even less than that
to the 5th. What do you think it might be by the time it gets
to the 80th turn on Tom's coil? Seems that we can assume that
the linkage between coil #1 and coil #80 is negligible.

> Once again it's necessary to point out that I'm speaking here of an
> inductor which has very good coupling between turns and minimal field
> leakage or radiation, ...

So was W6RMK.

> There's no magic transition point.

Indeed there isn't. I repeat, in case your didn't understand -
indeed there isn't. So you can discard your magic lumped-
circuit model for a system containing reflections.
--
73, Cecil http://www.qsl.net/w5dxp

2627. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 20:47:53 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ZTkRf.671$tN3.255@newssvr27.news.prodigy.net>
Source record: 63188

Richard Clark wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>Those two subjects were in different paragraphs and completely unrelated.
>
> 'xactly my point.

So if your point and my point are exactly the same, what is
the point in disagreeing?
--
73, Cecil http://www.qsl.net/w5dxp

2628. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 21:03:48 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <bcnb12to5qksig5813er3l0vqrvg77qoki@4ax.com>
Source record: 63189

On Mon, 13 Mar 2006 20:47:53 GMT, Cecil Moore <mycall@arrl.net> wrote:
>So if your point and my point are exactly the same, what is
>the point in disagreeing?
It doesn't respond to John's question. Glad you have no dispute.

Now we can proceed to your interpretation of what John apparently (to you) meant by his question, and how you answered THAT.

2629. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 21:13:39 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <SSKdnUw3lvL2fYjZSa8jmw@karoo.co.uk>
Source record: 63190

Big Nose wrote:

> Currently I am looking into the problem of using a common antenna for
> two VHF transceivers. One operates 30 - 90 MHz and the other from 30 -
> 512 MHz. They would both be tuned into seperate frequencies and need
> to share a common broadband, omni directional, vertical monopole.
>
> I think I am getting myself a bit confused (or should I say more
> confused), do I need to used a diplexer? Would a T piece not suffice
> as both sets would be tuned to different frequencies and seperation and
> harmonics would be considered? Would these factors not mean that the
> input impedance to the set tuned into the different frequency would
> remain high thus not effect matching?

Simple...

Get a two port circulator. That'll solve your problem (but at a price. Try E-Bay). At your low frequencies, try build one yourself.

Regarding the impedance, that is not that problematic. You can basically transform any impedance to your taste. You will incur signal loss tho'.

Also, as you unfortunately are looking at the lower end of the RF spectra, all these parts will be bulky but it's still possible.

Cheers

Dan / M0DFI

2630. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 21:15:35 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <jknb12pllgvfkcf4m5ielh6nbsrgaamqa1@4ax.com>
Source record: 63191

You may want to check out the antenna advertising here:
http://www.alphadeltacom.com/

It seems like your description.
I do not have an antenna for 160-80.
The DX-LB at $130 looks pretty good.

On 12 Mar 2006 17:48:03 -0500, "Bill Turner" <noway@nohow.com> wrote:

>ORIGINAL MESSAGE:
>
>Dick, AA5VU wrote:
>
>> It
>> was full size 40 meter dipole with what I remember he called a
>> resister (that was really a coil)
>
>
>~~~~~~
>The word was "resonactor". I have one of his antennas and it works
>fine.
>
>I have not examined the resonactor in detail, but I believe it is just
>an inductor which is carefully wound to be self-resonant at the desired
>frequency, thereby eliminating the need for a separate capacitor to
>resonate it. A clever idea, since eliminating the separate capacitor
>easily allows full legal power without the expense of a very high
>voltage capacitor.
>
>W9INN's trap dipoles are the only ones I know of which advertise full
>legal power handling, and that's why I purchased one. I've been running
>full power RTTY on mine for five years with no problems.
>
>Since I purchased mine there may have been other full power trap
>dipoles come on the market. If anyone knows of one, please reply. I'm
>always curious about such things.
>
>Bill, W6WRT
John Ferrell W8CCW

2631. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 21:56:18 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns97858DC3767F7doldridgsprintca@64.59.135.159>
Source record: 63192

Dan Andersson <dan@andersson.co.uk> wrote in
news:SSKdnUw3lvL2fYjZSa8jmw@karoo.co.uk:

> Big Nose wrote:
>
>> Currently I am looking into the problem of using a common antenna for
>> two VHF transceivers. One operates 30 - 90 MHz and the other from 30
>> - 512 MHz. They would both be tuned into seperate frequencies and
>> need to share a common broadband, omni directional, vertical
>> monopole.
>>
>> I think I am getting myself a bit confused (or should I say more
>> confused), do I need to used a diplexer? Would a T piece not suffice
>> as both sets would be tuned to different frequencies and seperation
>> and harmonics would be considered? Would these factors not mean that
>> the input impedance to the set tuned into the different frequency
>> would remain high thus not effect matching?
>
>
> Simple...
>
> Get a two port circulator. That'll solve your problem (but at a
> price. Try E-Bay). At your low frequencies, try build one yourself.
>
> Regarding the impedance, that is not that problematic. You can
> basically transform any impedance to your taste. You will incur signal
> loss tho'.
>
> Also, as you unfortunately are looking at the lower end of the RF
> spectra, all these parts will be bulky but it's still possible.

Possible, but a bit tricky to set up, since you'll need quite a few db of isolation between the ports for this to work even reasonably. 60db would be enough for separations in the range of 10mhz or more, but below that, you're starting to need 75 or 80db in order to hear something on the other receiver.

If it's only necessary to use one radio at a time, then maybe 25 or 30db would do it OK, since all you really need to do then is prevent receiver damage. But if it's desired to use both radios simultaneously, then the more isolation, the better.

--
Dave Oldridge+
ICQ 1800667

2632. Re: Coax To Coax Noise transfer ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 22:01:21 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <7IadnWIMNuosdojZRVn-pg@comcast.com>
Source record: 63193

Robert11 wrote:

> Hello:
>

> SNIPPED

>
> Was wondering about coax to coax noise transfer into the receiving antennas
> coax from being right alongside
> this Comcast stuff.
>
> Think there's any reason for concern ?
>
SNIPPED

> Thanks,
> Bob
>
>

I hope NOT!! I run 1 KW in coax that runs right alongside my COMCAST installation. My internet connection [COMCAST W-B modem] is 75 feet from the station and I run 75 feet of COAX right next to it [within 1 inch].

No problems in the computer or TVs [three].

2633. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 22:24:41 UTC
From: richardharrison@webtv.net
Message-ID: <16561-4415F129-38@storefull-3256.bay.webtv.net>
Source record: 63194

Tom, W8JI wrote:
"A reflector does not reflect anything. It radiates."

Call a parasitic element anything you like, but the convention has already set in.

Kraus tells the Yagi-Uda story on page 246 of his 3rd edition of "Antennas". He writes:
"He (Uda) found the highest gain with the reflector about lambda/2 in length (they must be near resonance to get excited properly) and spaced about lambda/4 from the driven element, while the best director lengths were about 10% less than lambda/3."

Uda`s reports were published between March 1926 and July 1929. There has been much fine tuning since then.

On page 245, Kraus writes:
"When the parasitic element is inductive (longer than its resonant length) it acts as a reflector. When it is capacitive (shorter than its resonant length) it acts as a director."

Shortwave broadcast station I worked in about a 1/2 century ago used parasitic arrays of horizontal antennas. They were called "curtains". We did the adjustments of reflector phasings near the earth. The reflectors had feedlines like the driven elements, but were connected to short-circuit stubs instead of a transmitter. The shorting bar location was adjusted for the proper phase lag behind the driven element. It`s easier than trimming the reflector.

We hung sampling loops from the driven element and reflector and fed them to an RCA WM-30-A phase monitor exactly as were used in medium wave broadcast stations for maintenance of directional arrays.

You could have used such a phase monitor to check the phase difference introduced by a mobile loading coil. It is an oscilloscope fitted with a precision phase shifter which identifies which of the 4 quadrants the phase difference falls in and the number of degrees.

The parasitic reflector performs the function of reversing the direction of much of the energy traveling toward it. Someone in this thread said it can be 99% effective. I also recall reading somewhere that if you are constructing a 2-element parasitic array, you`ll get more gain from a director than from a reflector. Our broadcast plant was behind our reflectors so it made sense to protect it in spite of perhaps a slight gain penalty.

Best regards, Richaed Harrison, KB5WZI

2634. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 22:51:27 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <IHmRf.556308$qk4.507056@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63195

Cecil Moore wrote:
> I have
> hardly any idea how they used a "fiber optic probe" to make
> their measurements. I suspect they superposed local RF phasors
> and used a fiber optic system to report the results. That's
> what I would do.

Make sure you set those "superposed local RF phasors" on stun before you make the measurement. Otherwise you might hurt someone.

73,
Gene
W4SZ

2635. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 23:33:18 UTC
From: w8ji@akorn.net
Message-ID: <1142292798.619808.225820@j52g2000cwj.googlegroups.com>
Source record: 63196

Gene Fuller wrote:
> Cecil Moore wrote:
> > I have
> > hardly any idea how they used a "fiber optic probe" to make
> > their measurements. I suspect they superposed local RF phasors
> > and used a fiber optic system to report the results. That's
> > what I would do.
>
> Make sure you set those "superposed local RF phasors" on stun before you
> make the measurement. Otherwise you might hurt someone.

The current measurements Roy and I independently made using different equipment and antennas on resonant antennas aren't valid, according to Cecil.

The measurements I made on multiple inductors on the test bench in a non-resonant system terminated in a load resistor aren't valid either, according to Cecil.

What do all these measurements have in common?

The phasors were on stun. ;-)

2636. RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-13 23:59:34 UTC
From: Robert11 <rgsros@notme.com>
Message-ID: <Bf2dnXDoeID5movZnZ2dneKdnZydnZ2d@comcast.com>
Source record: 63197

Hello:

Is it safe to use the typical GE RTV silicones against a Polyethylene (PE) coax outer jacket ?

I know the RTV's use some type of acid (acetic ?) to cure the stuff, and I was wondering if
anyone might have any first hand experience if there is any kind of interaction with a coax outer jacket ?

Thanks,
Bob

2637. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 00:29:52 UTC
From: w8ji@akorn.net
Message-ID: <1142296192.199016.312420@j33g2000cwa.googlegroups.com>
Source record: 63198

art wrote:
> I disagree unless yoiu are specipically adressing the yagi design
> which
> is an explanation in terms of vectors.However an element radiates a
> field
> not a vector. To 'maximise' the redirection of rear field generation
> requires
> multi "reflectors" or a dish to capture all the rear radiation.

A yagi works exactly as I described. It is nothing more than a
parasitically excited end-fire phased array. The beam forming mechanism
in a Yagi is nothing even remotely similar to the beam forming in a
wide area array like a dish or a broadside-collinear array.

Tho a
> dish is used
> for micro wave frequencies it can be simulated by multi reflectors
> aranged in
> parabolic form. This method is not as mechanically feasable as the Yagi
> but does
> illustrate the effectiveness of a "refletor" versus a "director" in
> terms of "efficiency"
> or "effectivenes" ala, the two element yagi..when viewed as a mesh
> cuircuit assembly.

Not true.

The gain in a dish comes from the wide area of surface that is excited
in phase. The dish surface looks like multiple dipoles all excited in
exactly the same phase. Gain is not high because a reflector is "more
effective", it is high because a wide area of radiation (multiple
wavelengths wide) can be used to focus the forward beam.

This is why USIA Curtains for SW broadcast have substantial gain, as do
bedspring arrays at VHF and UHF. Dishes are much more closely related
to broadside-endfire arrays than any other antenna, and work on very
different principles than a Yagi.

The Yagi relates closely to an end-fire array, and that includes the
reflector.

This is why you do not see any yagis with multiple in line reflectors
and very few with trigional or sheet relectors, and why you do not see
dishes with directors. The workings
are entirely different.

73 Tom

2638. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 00:43:14 UTC
From: Larry Benko <xxw0qe@comcast.net>
Message-ID: <JuydnTWKQowDjIvZ4p2dnA@comcast.com>
Source record: 63199

Bob,

Go to h

http://www.dowcorning.com/content/etronics/etronicsseal/etronics_aas_1ptov.asp

for just about everything you would ever want to know. We use several
grades of electronics RTVs at work in contact with coaxial cable jackets
and all kinds of components to meet DO-160E vibration requirements for
airplave use. The stuff we use does not have the characteristic acetic
acid smell which I think is actually stearic acid.

73,
Larry, W0QE

Robert11 wrote:
> Hello:
>
> Is it safe to use the typical GE RTV silicones against a Polyethylene (PE)
> coax outer jacket ?
>
> I know the RTV's use some type of acid (acetic ?) to cure the stuff, and I
> was wondering if
> anyone might have any first hand experience if there is any kind of
> interaction with a coax outer jacket ?
>
> Thanks,
> Bob
>
>

2639. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 00:57:12 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <rYWdnbcrRqYFjovZnZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 63200

David G. Nagel wrote:
> John Popelish wrote:

>> The tantalizing part from my perspective is this:
>>
>> "The measurements were made with carefully designed fiberoptic probes
>> that were specifically designed to avoid perturbing the magnetic and
>> electric fields."
>>
>> I would like to read a full description of this instrumentation.
>
>
>
> Like many others I don't know everything. In line with reducing my
> ignorance could you amplify on how the phenomena is measured with a
> "fiber optic probe". What type of transducer is used to convert energy
> of an electrical nature to energy of an optical nature with out
> "perturbing the magnetic and electric fields".

I wish I could, but this is the first I have heard of such
instrumentation. That is why I would like to read more about it.

2640. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 01:02:15 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <mJidneAMuataiYvZRVn-tA@adelphia.com>
Source record: 63201

Cecil Moore wrote:
> John Popelish wrote:
>
>> I also note that the opening statement:
>>
>> "For closewound coils, with length to diameter ratios around 5:1, a
>> series of fairly careful measurements have been made with the coils
>> arranged vertically above a ground plane, fed at the base, with a
>> capacitive load on the other end, and the driving frequency arranged
>> to be at the resonant frequency of the whole assembly."
>>
>> This definitely specifies only a single frequency for the test.
>
>
> Yes, a 75m mobile base-loaded antenna is a single frequency
> antenna. Why are you surprised? Those guys have figured out
> something that I haven't, probably because they have better
> tools at their disposal than I do. They seem to have a 1%
> accurate model at frequencies other than the self-resonant
> frequency. I, OTOH, am only sure of my accuracy at the
> self-resonant frequency due to the limited tools at my
> disposal.
>
>> So I don't see how this reference
>> supports your claim that measuring the delay at resonance tells you
>> the delay at other frequencies. It also contradicts your claim about
>> how a standing wave makes it difficult to measure the current delay
>> through the coil. What have I missed?
>
>
> You missed the complete point, John.
(snip)

I don't think so. Your claim is that one can use a resonant condition
to find the current delay at that frequency, and then, assume that
that delay holds for all other, lower frequencies. I am skeptical
that this is the case for any device that is not inherently a constant
delay device. I think you are assuming your conclusion. You may be
right, but you can't prove it by assuming it. You have to demonstrate
it, (or find a reference where someone else does that) to be
persuasive. I am rooting for you, because this would be a handy
technique, but I am still skeptical that it is generally applicable.

2641. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 01:21:57 UTC
From: dplatt@radagast.org
Message-ID: <121c6lln9k19924@corp.supernews.com>
Source record: 63202

In article <JuydnTWKQowDjIvZ4p2dnA@comcast.com>,
Larry Benko <xxw0qe@comcast.net> wrote:

>Bob,
>
>Go to h
>
>http://www.dowcorning.com/content/etronics/etronicsseal/etronics_aas_1ptov.asp
>
>for just about everything you would ever want to know. We use several
>grades of electronics RTVs at work in contact with coaxial cable jackets
>and all kinds of components to meet DO-160E vibration requirements for
>airplave use. The stuff we use does not have the characteristic acetic
>acid smell which I think is actually stearic acid.

According to the labels I've read, much of the consumer-grade RTV does
in fact release acetic acid as it cures. Not good stuff to use around
electronics or other metals.

The noncorrosive, "moisture cure" or "neutral cure" RTVs are a better
choice for use around electronics. The ones marketed as "electronics-
grade" are the surest bet in this regard, and usually need to be
mail-ordered. A possible compromise would be the consumer-grade RTVs
which are specifically advertised as being noncorrosive for use on
metals - the labels on these say that they release methanol and
ammonia during cure.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

2642. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 01:32:25 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142299945.392458.73220@i40g2000cwc.googlegroups.com>
Source record: 63203

Tom
I read as far as the word "tho a"
and you made my day, you confirmed what I suspected that all
antennas are based around yagis and not about antennas in general which
is exactly the point I made earlier.But your explanation tho correct
for a yagi is not all encompasing.
If you contend that your explanation over rules the mesh or field
aproach i.e a reflector must always be a longer radiator completely
avoids the essence of the first question i.e long versus shorter
reflectors. When aproached from a meshed
circuit point of view it can be seen that coupling of radiators behind
the dipole generator can easily produce an element(s) of a shorter
length.since as you stated a reflrctor does not reflect
but creates a reactive field in conjuction with other elements in
the immediate field to satisfy Newton's law
The rest of your reply I consider irrelavent to what was previously
stated and thus diversionary to the subject at hand.
If you read the initial post carefully you will note that his question
revolved around the length of reflector (s) which in essence calls for
a different aproach to the traditional format
based around a yagi .It is for this reason that such questions are
raised by those who apply deeper thought to the subject,
ask this question over and over again and cannot be explaned
unless coupling of individual fields are brought into play instead of
introducing personal rules similar to front to back ratios which
is a point ratio of energy efficiency rather than a overall array
energy efficiency. and so on.
Art

2643. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:28:20 UTC
From: Steve <zarco@sonic.net>
Message-ID: <44162a45$0$58071$742ec2ed@news.sonic.net>
Source record: 63204

I wouldn't think anything but extremely good grounding
at the antenna will do much.

Long ago, when I lived on the west central coast of
Florida (lightning alley), I had a 6-meter repeater on
a tall building. The transmit and receive antennas were
at diagonal corners of the building (no duplexer).
We got a direct hit on BOTH antennas. The damage
was something to see. Antennas had no damage except
some scorch marks, but the coax was another matter.
There would be 2-3' of coax, then 2-3' of nothing but
scorched roofing. This repeated across the entire 150' or
so length of the coax! A whole bunch of RG-8 simply
vaporized.

Steve

2644. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:35:54 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121cb0eh5hhc230@corp.supernews.com>
Source record: 63205

It's my policy to keep all email confidential.

However, Cecil persists in sending me unwelcome email. I've requested several times, first politely then bluntly, that he stop sending it, but he ignores my requests and persists. I assume this is driven by the same compulsion that keeps him promoting his alternate theories.

Because this email comes after repeated requests that it not be sent, I don't feel bound to give it the same level of privilege as all other email and keep it private. I believe it's relevant to the discussion at hand on this group, so I'll share it here, verbatim and without editing. The subject is "Can't resist".

---- Beginning of quote ----

Sorry, Roy, I forgot to delete your email address from
my email address file.

When your house of cards based on out and out lying comes
tumbling down, exactly how are you going to handle the
obvious deliberate attempt at misinformation that you
and Tom have been distributing to the unwashed masses
for so many years? Did you think you would never get
caught in your lies during your lifetime or what? After
20 years of evidence to the contrary, you can hardly
plead ignorance.
--
no 73 for the "gobbledygook" guy, Cecil, W5DXP

---- End of quote ----

This is from the person who so loudly complains about people making personal attacks in place of reasoned arguments. I've done my best to explain basic theory, and even spent a day carefully constructing and making measurements and honestly reporting the results. I'll continue to do my best to present factual information in spite of these juvenile attacks, and will try my best to remain objective, although it's awfully hard sometimes in an environment that brings responses like this email typifies. Anyone who doesn't want to read what I post should add me to his newsgroup reader filter, as I did Cecil to mine two years ago. Those who do read what I post should know that I have absolutely no reason nor desire to mislead anyone in any way.

Roy Lewallen, W7EL

2645. Re: Safety ground versus RF ground for a 2nd Floor shack

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:38:38 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <44162cd9$0$3764$39cecf19@news.twtelecom.net>
Source record: 63206

jawod wrote:

>
> Reading the two responses so far...I'll get my advice elsewhere. Typical
> internet group response...mildly insulting and of no direct value. I
> first have to know what ground means? Whatever.
> Imaginary numbers apparently require imaginary minds.

Richard wrote a very detailed response which covered pretty much
everything you need. Perhaps you did not read it all.

What didn't you understand?

If you didn't understand something, you should have asked about what you
did not, and he would gladly (I'm assuming, but I'm pretty sure on this)
have answered your question.

tom
K0TAR

2646. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:38:53 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121cb615o4isf77@corp.supernews.com>
Source record: 63207

John Popelish wrote:
>
> I wish I could, but this is the first I have heard of such
> instrumentation. That is why I would like to read more about it.

Hopefully the poster mentioning the optical probe will explain a bit more. But I recall seeing optically coupled instrumentation used in an EMI screen room to couple signals in and out. To my knowledge, though, the probes themselves were conventional, and fiber optics were used only to replace connecting wires.

Roy Lewallen, W7EL

2647. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:41:49 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44162d6d_4@newsfeed.slurp.net>
Source record: 63208

ORIGINAL MESSAGE:

> Tom, W8JI wrote:
> "A reflector does not reflect anything. It radiates."

********** REPLY SEPARATOR **********

Tom could have said "it reflects by radiating".

Semantics count here.

73, Bill W6WRT

2648. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:50:53 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44162f8d_2@newsfeed.slurp.net>
Source record: 63209

ORIGINAL MESSAGE:

John Ferrell wrote:

>
> You may want to check out the antenna advertising here:
> http://www.alphadeltacom.com/
>
> It seems like your description.
> I do not have an antenna for 160-80.
> The DX-LB at $130 looks pretty good.

********** REPLY SEPARATOR **********

Yes, that looks very similar to the W9INN design. Should be a good one.

73, Bill W6WRT

2649. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 02:55:40 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <441630ac$1_4@newsfeed.slurp.net>
Source record: 63210

ORIGINAL MESSAGE:

Dave Platt wrote:

>
> The noncorrosive, "moisture cure" or "neutral cure" RTVs are a better
> choice for use around electronics. The ones marketed as "electronics-
> grade" are the surest bet in this regard, and usually need to be
> mail-ordered.

********** REPLY SEPARATOR **********

Your local pet shop will have RTV made for sealing glass aquariums
which does not release acetic acid or anything else harmful to fish. If
it won't harm fish, it surely won't harm your hardware.

73, Bill W6WRT

2650. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:15:47 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <121cdb7cihv2t1e@corp.supernews.com>
Source record: 63211

Roy Lewallen wrote:
> John Popelish wrote:
>
>>
>> I wish I could, but this is the first I have heard of such
>> instrumentation. That is why I would like to read more about it.
>
>
> Hopefully the poster mentioning the optical probe will explain a bit
> more. But I recall seeing optically coupled instrumentation used in an
> EMI screen room to couple signals in and out. To my knowledge, though,
> the probes themselves were conventional, and fiber optics were used only
> to replace connecting wires.
>
> Roy Lewallen, W7EL

Roy and John;

The fiber optic leads are used in the experiment mentioned in the story linked by the URL that was recently mentioned in this thread. I think the whole thing is hilarious and was especially struck by the use of glass fiber to measure an electrical/magnet phenominum with no indication how the measurement is made. Sort of in line with someone's line of thinking in this thread.

Dave N

2651. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:17:04 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <M7OdnaquPuktqlvZnZ2dnUVZ_tqdnZ2d@adelphia.com>
Source record: 63212

J. Mc Laughlin wrote:
> The hour is growing late and the urge to tell a story is upon me. Note,
> that unlike others, I never imbibe alcoholic beverages. This is a true
> story.

Despite his enjoying wine, I believe Reg's stories to be true also! 8^)

> A large, expensive, rotatable LPDA was erected on a tall tower and
> tested in an informal way with a receiver and short-wave broadcast
> transmitters as signal sources. Nulls were where they were supposed to be.
> F/B was roughly what was expected. Front lobe seemed about right.
>
> A month went by and it was time to perform more careful measurements. A
> 180 swing while listening to a distant carrier suggested that there was more
> gain off of the back than off of the front! Wise men pondered that this
> must be a measurement error.
>
> Impedances were very close to expected. The scheme that was used to
> determine that the antenna needed to be brought back to earth were these:
>
> (Keep in mind that this is a LPDA and not a Yagi.) A 6db pad was put in
> the line to ensure that the nonexistent impedance changes with no change in
> frequency would not affect things. An accurate, step attenuator was then
> added in the line. (Should sound familiar.) Antenna was pointed towards a
> known very high power broadcast station with a known location such that the
> expected receiving take-off angle was about 6 degrees. Bandwidth was made
> very narrow and centered on the carrier. Enough attenuation was added to
> get the S-meter to average either side of a mark. The attenuation was
> varied by one db up and down with several minutes at each level. Then the
> antenna was rotated 180 degrees and the change in attenuation to return to
> the same indication was noted. Ouch. Repeated several times it became
> clear that the antenna had reversed direction and (are you listening?) a
> number for the difference in gain (at the angle involved) and the
> uncertainty in that number was crafted. Lord K. should have said - and may
> have said - that all measurements comprise at least two numbers: an
> estimate expressed as a number and an estimate of the uncertainty in the
> first number expressed as a number.
>
> The evidence was conclusive that something had happened. A search for
> causality took place with the assistance of NEC. With a good deal of
> speculation and noting how the largest elements were constructed, it was
> speculated that one of the rearmost elements (or a part of one of the
> rearmost elements) may have become detached electrically. An NEC simulation
> was produced that fit the data. No, this is not proof, but it did furnish
> additional support for the need to lower the antenna. More support came

> from measurements at the high end of the frequency range where no anomalies
> were noted and where the long elements would not be expected to play much of
> a role.
>
> At significant cost and effort, the antenna was lowered and it was found
> that one of the mechanical connections of a sleeve with normal screw had not
> been tightened in a rear element. The conclusive proof was that the screw
> had not "cut." Apparently, a month of very sight corrosion had isolated
> part of an element.
>
> So, be my students and find the lessons in this tale. Make a list.

Lesson #1 - Put the thing together correctly. Check the connections.
Check it again.

Lesson #2 -some people needed to hone their troubleshooting skills. If
the antenna had performed well during the initial tests, using an
analysis program is probably the last thing to do. The time to do
analysis was long past.

I don't know much about antennas, (which is why I'm here) but I do know
troubleshooting. All the numbers that popped up on the tests and the
simulations were just blind alleys for y'all to go down and get beat up
in. Something changed in that month. Is it likely that the laws of
physics changed? Much more likely something in the installation was at
fault. The antenna should have been lowered when the second tests were
so different than the first ones. Of course following rule #1 would have
obviated the need for that!

>
> 73 and I am off to bed, perchance to dream of antennas, Mac N8TT

8^) -73 de Mike KB3EIA -

2652. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:26:19 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121cdv08ruvo207@corp.supernews.com>
Source record: 63213

Bill Turner wrote:
> ORIGINAL MESSAGE:
>
>> Tom, W8JI wrote:
>> "A reflector does not reflect anything. It radiates."
>
>
>
> ********** REPLY SEPARATOR **********
>
> Tom could have said "it reflects by radiating".
>
> Semantics count here.
>
> 73, Bill W6WRT

That's an interesting point. Suppose you have a two-element driven array with the elements spaced a quarter wave apart and fed 90 degrees out of phase. This produces a cardioid pattern, which has a deep null. Is the element toward the direction of the null "reflecting" and the other one "directing"? If so, what are they "reflecting" and "directing"?

Each element intercepts considerable energy from the other and reradiates it, if that makes a difference.

Here's another one: Build a 4 square array, assuming the ground is perfect. (The EZNEC example file 4Square.EZ or demo equivalent d_4Square.EZ can be used to illustrate this.) If you disconnect the feedline to the rear array element and short circuit the feedpoint (by deleting Source 1 in the EZNEC model), you'll still have a moderately good directional pattern with about 15 dB front-back ratio. The rear element is now a parasitic element, which we like to call a "reflector". You've said it "reflects by radiating". Now connect the rear element feedline as in the original antenna. The front/back ratio improves. But the feedpoint resistance of the rear element is negative. This isn't particularly unusual in driven arrays -- it means that the element in question is absorbing power from the other elements and sending down the feedline toward the source. The element is still radiating, because current is flowing on it. But it's absorbing more power from the surrounding region than it's giving back in the form of a field. (Again, the excess is being sent back along the feedline to be used by the other elements.) So, is that element now "reflecting"? If so, is it "reflecting by radiating"?

Roy Lewallen, W7EL

2653. Re: Description of W9INN 40/80 dipole

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:31:28 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <25ec1250g0ssd441qmsl4hrkqqq8lskdmh@4ax.com>
Source record: 63214

On 13 Mar 2006 21:50:53 -0500, "Bill Turner" <noway@nohow.com> wrote:

>ORIGINAL MESSAGE:
>
>John Ferrell wrote:
>
>>
>> You may want to check out the antenna advertising here:
>> http://www.alphadeltacom.com/
>>
>> It seems like your description.
>> I do not have an antenna for 160-80.
>> The DX-LB at $130 looks pretty good.
>
>
>
>********** REPLY SEPARATOR **********
>
>Yes, that looks very similar to the W9INN design. Should be a good one.
>
>73, Bill W6WRT

I had one of the Alpha Delta antennas many years ago; the inductors
were wound on ceramic or plastic forms, I forget which, but it was a
very well-built antenna.

bob
k5qwg

2654. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:44:26 UTC
From: Harry Gross <harry144@optonline.net>
Message-ID: <u_qRf.1227$MG6.644@fe10.lga>
Source record: 63215

Hi all,

I'm toying with the idea of an 'electronically rotatable' dipole setup.

Consider: a dipole oriented N/S
another dipole oriented E/W
They cross each other at the mid-point of each, forming a big plus
sign, like so:

```
|
|
----+----
|
|
```

If you feed the N/S dipole, you get an E/W radiation pattern.
Similarly, if you feed the E/W dipole, you get a N/S radiation patter.

If you feed the N/S and E/W dipoles simultaneously, you get a NW/SE radiation pattern (for example), and if you flip the feed of either one of them 180 degrees, then you get a NE/SW radiation pattern.

So far, so good. Now for the fun part. If you feed one of the dipoles with a signal that is only 90 degrees out of phase (or 270 degrees), you can get radiation patterns that take of in the NNW/SSE or WNW/ESE directions, and if you feed the other dipole 90 or 270 degrees out of phase, you get NNE/SSW and ENE/WSW directions.

What I am looking for is a circuit that can perform the necessary phase delays, without having to use miles of coax coiled up in the shack. Ideally, the circuit would be able to perform the phase shift on all (or at least several) ham bands, so that it could feed into a pair of fan-dipoles for operation on multiple bands.

Anyone have any suggestions on just how to accomplish this? In the extreme case, you could have a continuously adjustable system, that would permit you to point the 'virtual dipole' in any direction at all, which might be useful when attempting to null out an interfering station off to the side of the desired signal. However, in practice, I suspect that the eight positions mentioned above would be sufficient to do the same thing (albeit with the possibility of somewhat more signal loss due to fixed aiming directions).

I seem to recall seeing a quote in the ARRL Handbook (or the ARRL Antenna Book) from Roy Lewallen, indicating that there is no simple way to do this. Am I mis-remembering (or mis-interpreting) what I read?

I know that the military does this sort of thing with radar systems, and has for some time. However, their budget is quite a bit bigger than mine, so perhaps their solution isn't 'simple':-)

Any thoughts on this, anyone?

Harry Gross

2655. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:56:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <u9rRf.742$tN3.330@newssvr27.news.prodigy.net>
Source record: 63216

John Popelish wrote:
> I don't think so. Your claim is that one can use a resonant condition
> to find the current delay at that frequency, and then, assume that that
> delay holds for all other, lower frequencies.

At other *HF* frequencies and within reason, John, within reason.
A two to one range wouldn't surprise me. Tom's five to one range
from 16 MHz to 4 MHz is surprising. If the frequency kept going
to 1 MHz, would the delay go below 3 nS? If Tom measured the delay
at the self-resonant frequency of 16 MHz, would he measure 16 nS?
If one plots the delay from 1 MHz to 16 MHz would there be any
nonlinear points on the curve as implied by Tom's measurements?

> I am skeptical that this
> is the case for any device that is not inherently a constant delay
> device.

I didn't mean to imply that it was an absolutely constant
delay device. If it is well designed and if the environment
is held constant, it should exhibit approximately the same
delay over HF below its self-resonant frequency. Tom's
measurements implied a 5 to 1 range shift in delay from a
4 to 1 range shift in frequency. Delays changing faster than
the frequency certainly don't make sense to me. What would
be the cause?

From 16 Mhz to 4 Mhz:
Does L vary much with frequency? Why?
Does C vary much with frequency? Why?
Does R vary much with frequency? Why?
Does G vary much with frequency? Why?
These are the parameters in the "phase constant" equation.

Let's take a look at my measured data where I changed the
stinger by 2 feet from zero to 12 feet. The 75m bugcatcher
coil is mounted on a mobile antenna mount on my GMC pickup.
For clearence purposes, it has a one foot bottom section.

The stinger goes from 0' to 12': 0, 2, 4, 6, 8, 10, 12
The resonant frequency goes from: 6.7, 5.1, 4.3, 3.8, 3.5, 3.2, 3.0 MHz
I just don't see any nonlinear changes such as Tom reported.
--
73, Cecil http://www.qsl.net/w5dxp

2656. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 03:59:12 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44163f90_3@newsfeed.slurp.net>
Source record: 63217

ORIGINAL MESSAGE:

Roy Lewallen wrote:

> That's an interesting point. Suppose you have a two-element driven
> array with the elements spaced a quarter wave apart and fed 90
> degrees out of phase. This produces a cardioid pattern, which has a
> deep null. Is the element toward the direction of the null
> "reflecting" and the other one "directing"? If so, what are they
> "reflecting" and "directing"?

********** REPLY SEPARATOR **********

Trying to bridge the gap between engineering and English, I would
suggest this analogy:

A mirror reflects light energy fed to it, while a light bulb takes
electricity and turns it into light.

Either a mirror or a light bulb can be used to send light in a desired
direction, but only one is "reflecting" that energy in the usual sense
of the word. Likewise, only the mirror is "re-radiating" energy, much
like a yagi's reflector does.

The analogy is not perfect but that's what the words mean to me.

73, Bill W6WRT

2657. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:04:43 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <441640db_5@newsfeed.slurp.net>
Source record: 63218

ORIGINAL MESSAGE:

Mike Coslo wrote:

> So, be my students and find the lessons in this tale. Make a list.

********** REPLY SEPARATOR **********

My very first thought was you were receiving an LP signal instead of
SP.

Shows how a DXer thinks. :-)

73, Bill W6WRT

2658. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:09:08 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv5fl4$3k0$2@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63220

Addressed to nobody in particular.

From basic transmission line theory, the velocity of propagation along a coil is estimated by -

V = 1 / Sqrt(L * C) metres per second,

where L and C are henrys and farads per metre respectively. The formula for L and C can be found in your Bibles from coil dimensions, numbers of turns, etc.

The velocity factor = V / c and Zo = Sqr(L / C).

Attenuation (loss) = R / 2 / Zo nepers, where R is wire resistance plus radiation resistance.

From which other interesting facts can be deduced.

Reg.

2659. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:09:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <3mrRf.744$tN3.23@newssvr27.news.prodigy.net>
Source record: 63219

John Popelish wrote:
> ... I see no reason to assume the transmission line method
> (delay independent of frequency) strictly applies. It might, but it
> would take more than you saying so to assure me that it is a fact.

Assume the environment of the coil is fixed like the variable
stinger measurement I reported earlier. Besides the frequency
term, the phase constant depends upon L, C, R, and G as does
the Z0 equation. Why would the L, C, R, and G change appreciably
over a relatively narrow frequency range as in my bugcatcher coil
measurements going from 6.7 MHz to 3.0 MHz?

And I didn't mean to imply that the delay is "independent" of
frequency, just that it is not nearly as frequency dependent
as Tom's measurements would suggest. If Tom made his measurements
from 1 MHz to 16 MHz, what do you think the curve would look like?

Freq 1 2 4 8 16 MHz
Delay ___ ___ 3 ___ 16 nS

That looks non-linear to me. How about you?
--
73, Cecil http://www.qsl.net/w5dxp

2660. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:11:13 UTC
From: "Dan, danl, danny boy, Redbeard, actually Greybeard now" <danl4x@charter.net>
Message-ID: <a5gc12tr0dbcihqr9fvjjhj5dbln96o7jb@4ax.com>
Source record: 63223

On Mon, 13 Mar 2006 18:59:34 -0500, "Robert11" <rgsros@notme.com> sent
into the ether:

>>>Hello:
>>>
>>>Is it safe to use the typical GE RTV silicones against a Polyethylene (PE)
>>>coax outer jacket ?
>>>
>>>I know the RTV's use some type of acid (acetic ?) to cure the stuff, and I
>>>was wondering if
>>>anyone might have any first hand experience if there is any kind of
>>>interaction with a coax outer jacket ?
>>>
>>>Thanks,
>>>Bob
>>>

Bob,
I have been using GE 1200 on coax and connectors since the early
seventies and have never had a problem with it affecting good silver
plated or cheap connectors or the varying grades of coax I have used.
If you want to be fussy cover the connector with electrical tape and
then cover with silicone. This makes it easier to remove but is not
necessary for protecting the connector or the coax. I would not use
it inside of a radio or other electronic equipment but outside of that
it will not hurt and will keep the connection free of moisture, BTW,
if you do wrap it with tape first be sure to coat the coax past the
tape to ensure a good waterproof seal.

N9JBF

I've learned that I don't suffer from insanity, I enjoy it!
danl4x@charter.net
Remove the x for e-mail reply
www.outdoorfrontiers.com
www.SecretWeaponLures.com
A proud charter member of "PETAF", People for Eating Tasty Animals and Fish!!!

2661. Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:13:06 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <t3gc12hgeam243af8vg7s5tell59lmkts1@4ax.com>
Source record: 63221

You probably haven't thought of powerlines as an antenna, the BPL industry pretends they aren't, but they are.

A recent news item is about a new patent for a "Filter for segmenting powerlines for communications" (US 7,005,943). It is described:

"There is provided a method for blocking a portion of energy of a signal in a power line. The method includes equipping a high frequency magnetic core with a coil, connecting a capacitor across terminals of the coil to create a resonant circuit that resonates at a frequency of the signal, and placing the magnetic core around the power line, at a location where the blocking is desired."

Hmmm, a trap! Without getting bogged down in the details of the coil and the current / phase relationships, is this likely to be effective? A parallel resonant trap in an antenna doesn't eliminate current beyond the trap at the frequency of trap resonance. Will it make the region of the powerline between the injector and the trap a better radiatior for the same injector power?

Thoughts?

Owen
--

2662. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:21:39 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <nxrRf.747$tN3.209@newssvr27.news.prodigy.net>
Source record: 63222

Roy Lewallen wrote:
> It's my policy to keep all email confidential.

Apparently not. That was a private email. Publishing it in public without my permission is unethical but seems you and Tom will seemingly stop at nothing to keep promoting your myths.

You have, over and over, rejected the distributed network model even though you know it is a superset of the lumped-circuit model. Would you agree with me that after all this time, you cannot possibly plead ignorance?
--
73, Cecil http://www.qsl.net/w5dxp

2663. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:31:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <tGrRf.749$tN3.165@newssvr27.news.prodigy.net>
Source record: 63224

David G. Nagel wrote:
> The fiber optic leads are used in the experiment mentioned in the story
> linked by the URL that was recently mentioned in this thread. I think
> the whole thing is hilarious and was especially struck by the use of
> glass fiber to measure an electrical/magnet phenominum with no
> indication how the measurement is made. Sort of in line with someone's
> line of thinking in this thread.

There exist transducers that will convert RF to light on one end of
a fiber optics cable and back to RF at the other end. It's no big
deal and keeps the transfer of information from being affected by
EM fields.
--
73, Cecil http://www.qsl.net/w5dxp

2664. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:32:28 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv5h0r$67m$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63225

Oops!

Zo = Sqrt(L / C)

2665. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 04:37:58 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <GMrRf.750$tN3.463@newssvr27.news.prodigy.net>
Source record: 63126

Reg Edwards wrote:
> From basic transmission line theory, the velocity of propagation along
> a coil is estimated by -
>
> V = 1 / Sqrt(L * C) metres per second,

So Reg, for a fixed installation, why would L and C change
much with frequency, like from 16 nS at 16 MHz to 3 nS at
4 MHz? If we took it down to 1 MHz, would the delay go
below 3 nS?
--
73, Cecil http://www.qsl.net/w5dxp

2666. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 05:13:52 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <kisRf.779$tN3.414@newssvr27.news.prodigy.net>
Source record: 63127

Roy Lewallen wrote:
> I believe it's relevant to the discussion at
> hand on this group, so I'll share it here, ...

So you believe my personal feelings about you are relevant
to a technical discussion???? Exactly which technical
parameters are affected by my feelings about you?

Every time this subject comes up, more and more people
realize that the r.r.a.a gurus are not omniscient.

Here's a smattering of the email I've received over
the past week. Unlike you, I won't mention any names.

"I hope ... that [X and Y] will acknowledge the validity
of your approach." [X and Y are posters to r.r.a.a]

"You are moving pretty fast, but nothing that you are saying
sounds like there are any glaring errors."

"Distributed constants not lumped constants prevail."

"I, too, am skeptical of that 3 ns delay."

" ...your Corum reference certainly ends the debate."

"I want to let you know your dedication to principle and rational
analysis ... are inspiring to many of us."

"The unwillingness of the "gurus" to answer specific technical
questions is pretty disappointing."

Roy, are you listening to that last comment?
--
73, Cecil http://www.qsl.net/w5dxp

2667. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 05:35:44 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142314544.905620.35620@v46g2000cwv.googlegroups.com>
Source record: 63129

Very good.And if you turn the element the element it turns
the deflected missile or what ever impinged on it, in a different
direction. This is exactly why the question was stated the way that it
was, a little bit of knoweledge based on conventional
teachings(waves) that becomes distorted when people reverse the notion
that a yagi design is a subset of radiation. in the exploration of the
field and waves subject, When exploring radiation in its truest sense
you are dealing with the interaction of different fields which is not
predicated solely on element length
Since the yagi is designed for a specific purpose or parameters
one can then parrot other factors that are relavent only to this
particular design such as the idea element length determines what is a
director or a reflector such as a pin ball machine in a arcade which
generate sweeping terms or semantics.It is always better to pass on
accepted teachings in answer to any question than generating an answer
you think should have been asked on the assumption that the receiver is
not smart enough
to understand the correct response and is to be given a simplistic
response without caveates.
Art

2668. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 05:35:52 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142314552.168766.187940@j52g2000cwj.googlegroups.com>
Source record: 63128

Very good.And if you turn the element the element it turns
the deflected missile or what ever impinged on it, in a different
direction. This is exactly why the question was stated the way that it
was, a little bit of knoweledge based on conventional
teachings(waves) that becomes distorted when people reverse the notion
that a yagi design is a subset of radiation. in the exploration of the
field and waves subject, When exploring radiation in its truest sense
you are dealing with the interaction of different fields which is not
predicated solely on element length
Since the yagi is designed for a specific purpose or parameters
one can then parrot other factors that are relavent only to this
particular design such as the idea element length determines what is a
director or a reflector such as a pin ball machine in a arcade which
generate sweeping terms or semantics.It is always better to pass on
accepted teachings in answer to any question than generating an answer
you think should have been asked on the assumption that the receiver is
not smart enough
to understand the correct response and is to be given a simplistic
response without caveates.
Art

2669. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 05:52:30 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142312610.017971.218740@v46g2000cwv.googlegroups.com>
Source record: 63130

Could you describe more fully the phase-shifted case? When I simulate it, I get a nearly non-directional pattern... that's with two dipoles, separated vertically by a tiny amount, with a current source at the center of each. That's as I'd expect, since that configuration has been used for a very long time as an omnidirectional horizontally polarized antenna for things like FM broadcast reception.

But why not just vary the relative amplitudes in the two dipoles? Then you can rotate the pattern fairly easily. (The pattern when both elements are contributing won't be quite as sharp as a simple dipole, but the null could be useful on receiving.) You can use a variometer to change the relative amplitudes. A variometer consists of two coils in mechanical quadrature, with the center point of the two coincident. Then at the center, there's a rotating coil. So you feed power to the rotating coil (or feed your receiver from it), and connect the two fixed coils to the antennas.

It's a big help that the two dipoles in that orientation don't couple to each other (at least in an "ideal" installation).

By the way, if you Google "variometer," you'll probably find references to just one fixed coil with a rotatable one inside it. That's not the only kind...maybe the one I described above has a name; I tried "quadrature variometer" with no real luck.

Cheers,
Tom

2670. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 06:11:43 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv5mqv$di7$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63131

"Cecil Moore" <mycall@arrl.net> wrote in message
news:GMrRf.750$tN3.463@newssvr27.news.prodigy.net...
> Reg Edwards wrote:
> > From basic transmission line theory, the velocity of propagation
along
> > a coil is estimated by -
> >
> > V = 1 / Sqrt(L * C) metres per second,
>
> So Reg, for a fixed installation, why would L and C change
> much with frequency, like from 16 nS at 16 MHz to 3 nS at
> 4 MHz? If we took it down to 1 MHz, would the delay go
> below 3 nS?
> --
> 73, Cecil http://www.qsl.net/w5dxp

==========

Sorry Cec, I havn't the foggiest idea.

Having started it, I havn't been taking much notice of this
long-winded thread. Its all too clever for poor little me! ;o)

Reg.

2671. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 06:25:58 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <_itRf.1568$Tv6.617@bignews5.bellsouth.net>
Source record: 63132

Well, one thing for darn sure - those 2 radios sharing the antenna should be able to hear each other really really good - (till they destroy each other's front end.)
Given the parameters (sharing some of the same frequencies) - the only way to share the antenna is by unplugging the coax from one radio and pluggin it into the other. - Or using a good coax switch - (which could conceivably be a relay)
But I may be wrong.
My 2¢
w4pmj
Hal

"Big Nose" <massivehooter@hotmail.co.uk> wrote in message
news:1142271577.733440.280370@p10g2000cwp.googlegroups.com...
> Currently I am looking into the problem of using a common antenna for
> two VHF transceivers. One operates 30 - 90 MHz and the other from 30 -
> 512 MHz. They would both be tuned into seperate frequencies and need
> to share a common broadband, omni directional, vertical monopole.
>
> I think I am getting myself a bit confused (or should I say more
> confused), do I need to used a diplexer? Would a T piece not suffice
> as both sets would be tuned to different frequencies and seperation and
> harmonics would be considered? Would these factors not mean that the
> input impedance to the set tuned into the different frequency would
> remain high thus not effect matching?
>

2672. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 06:36:40 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <0ttRf.1569$Tv6.867@bignews5.bellsouth.net>
Source record: 63133

That's right - a bolt of lightning comes streaking across several miles of
dry air, finds the antenna with no problem, then upon seeing the loop, ducks
back into the ground.
But at least the loop will make the rain drip outside. It not useless.

"w_tom" <w_tom1@usa.net> wrote in message
news:1142219157.314335.180560@j52g2000cwj.googlegroups.com...
> Do you think a loop will stop what three miles of sky could not?
> Effective protection is not about stopping a transient. That does not
> work and is they myth even used to promote plug-in protectors. A most
> trivial earth ground is a massive improvement in protection. That
> incoming wire must be earthed - directly or through a protector -
> before entering the building. That simplest earthing is many times
> more effective than 100 loops. Effective for direct strkes - which
> means induced trasnients would be made irrelevant.
>
> The US Forestry Service has documented that most direct strikes to
> trees do not leave appreciable indication. Even a standard household
> earth ground in conductive soil will provide protection from most
> lightning strikes. Then we enhance that earthing for other, more
> violent and less frequent direct strikes.
>
> Quality of earthing determines how many direct strikes will be
> earthed without damage. Even some earthng to a single point is a
> massive improvement in transistor protection. But the loop is about
> as useful as bad science fiction. For loop to be effective, then loop
> also must seriously degrade radio reception. How many reasons why that
> loop is useless? Five?
>
> Robert11 wrote:
> > Hello:
> >
> > Anyone have any thoughts on (hopefully not experiences) whether putting
a
> > loop of, e.g. 1 foot in diameter,
> > on a coax run from an outdoor receive-only antenna has any merit as far
as
> > helping any emf lightning induced pulses from traveling into a house ?
> >
> > Have heard about this, but it's hard to believe it would actually do
> > anything in practice.
> > But,... ?
> >
> > B.

>

2673. Re: Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 07:04:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121cqn82o4udt51@corp.supernews.com>
Source record: 63134

Owen Duffy wrote:
> You probably haven't thought of powerlines as an antenna, the BPL
> industry pretends they aren't, but they are.
>
> A recent news item is about a new patent for a "Filter for segmenting
> powerlines for communications" (US 7,005,943). It is described:
>
> "There is provided a method for blocking a portion of energy of a
> signal in a power line. The method includes equipping a high frequency
> magnetic core with a coil, connecting a capacitor across terminals of
> the coil to create a resonant circuit that resonates at a frequency of
> the signal, and placing the magnetic core around the power line, at a
> location where the blocking is desired."
>
> Hmmm, a trap! Without getting bogged down in the details of the coil
> and the current / phase relationships, is this likely to be effective?
> A parallel resonant trap in an antenna doesn't eliminate current
> beyond the trap at the frequency of trap resonance. Will it make the
> region of the powerline between the injector and the trap a better
> radiatior for the same injector power?
>
> Thoughts?
>

You're correct that a trap doesn't stop current -- or energy -- at the trap. The lines on both sides couple with each other, allowing substantial current to flow on the side away from the source. All the trap does is guarantee a current null at some point. A quarter wave away, a current maximum will occur. In fact, a trap can increase current coupled into a wire if it breaks a formerly non-resonant wire into pieces of which one or more are near resonance.

Roy Lewallen, W7EL

2674. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 07:14:29 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121craq3ed95h91@corp.supernews.com>
Source record: 63135

The advice to avoid acetic-acid smelling RTV because of corrosion is passed along from person to person like an urban legend, but like an urban legend it's just about impossible to find anyone who's actually seen any corrosion result from its use. (A number of queries I've made over the years has produced just one, using a very early version of RTV.)

I've used the acetic-acid smelling stuff for decades on a variety of metals including tinned and untinned wire, aluminum, nickel, and copper circuit boards, and never seen a hint of corrosion. But formulations vary widely, and my experience certainly isn't exhaustive. I'm not entirely convinced, though, that among the many formulations there aren't others, which don't have that smell, which might be corrosive to some materials.

People who worry about this should buy an industrial product and stay with it, since there's a much better chance the formulation won't change in the future without notice.

Roy Lewallen, W7EL

2675. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 07:20:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121crm0eijembda@corp.supernews.com>
Source record: 63136

The two dipoles don't couple to each other, so you have a lot of options
for feed systems. Transmission delay lines are one. Another is lumped
circuit networks -- an L network can be designed to effect a range of
phase shifts.

I think you'll find, though, that you'll hardly be able to tell when you
rotate the array in any increment smaller than 90 degrees, and unless a
signal is pretty close to a null, even that rotation won't make a
striking difference. It's a problem that's easily modeled, so I'd start
by seeing just what I might gain from it before going to the trouble.

Roy Lewallen, W7EL

Harry Gross wrote:
> Hi all,
>
> I'm toying with the idea of an 'electronically rotatable' dipole setup.
>
> Consider: a dipole oriented N/S
> another dipole oriented E/W
> They cross each other at the mid-point of each, forming a big plus
> sign, like so:
>
> |
> |
> ----+----
> |
> |
>
> If you feed the N/S dipole, you get an E/W radiation pattern. Similarly,
> if you feed the E/W dipole, you get a N/S radiation patter.
>
> If you feed the N/S and E/W dipoles simultaneously, you get a NW/SE
> radiation pattern (for example), and if you flip the feed of either one
> of them 180 degrees, then you get a NE/SW radiation pattern.
>
> So far, so good. Now for the fun part. If you feed one of the dipoles
> with a signal that is only 90 degrees out of phase (or 270 degrees), you
> can get radiation patterns that take of in the NNW/SSE or WNW/ESE
> directions, and if you feed the other dipole 90 or 270 degrees out of
> phase, you get NNE/SSW and ENE/WSW directions.
>
> What I am looking for is a circuit that can perform the necessary phase
> delays, without having to use miles of coax coiled up in the shack.
> Ideally, the circuit would be able to perform the phase shift on all (or

> at least several) ham bands, so that it could feed into a pair of
> fan-dipoles for operation on multiple bands.
>
> Anyone have any suggestions on just how to accomplish this? In the
> extreme case, you could have a continuously adjustable system, that
> would permit you to point the 'virtual dipole' in any direction at all,
> which might be useful when attempting to null out an interfering station
> off to the side of the desired signal. However, in practice, I suspect
> that the eight positions mentioned above would be sufficient to do the
> same thing (albeit with the possibility of somewhat more signal loss due
> to fixed aiming directions).
>
> I seem to recall seeing a quote in the ARRL Handbook (or the ARRL
> Antenna Book) from Roy Lewallen, indicating that there is no simple way
> to do this. Am I mis-remembering (or mis-interpreting) what I read?
>
> I know that the military does this sort of thing with radar systems, and
> has for some time. However, their budget is quite a bit bigger than
> mine, so perhaps their solution isn't 'simple':-)
>
> Any thoughts on this, anyone?
>
> Harry Gross

2676. Re: Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 07:34:47 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <b0sc12lc524qn35fkk5skbapp95gvlrtb5@4ax.com>
Source record: 63137

On Mon, 13 Mar 2006 23:04:03 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>You're correct that a trap doesn't stop current -- or energy -- at the
>trap. The lines on both sides couple with each other, allowing
>substantial current to flow on the side away from the source. All the
>trap does is guarantee a current null at some point. A quarter wave
>away, a current maximum will occur. In fact, a trap can increase current
>coupled into a wire if it breaks a formerly non-resonant wire into
>pieces of which one or more are near resonance.

Thanks Roy,

Given that BPL band plans often have a link bandwidth of several MHz,
one wonders also about the effectiveness of a trap in compromising
depth of notch vs bandwidth. Perhaps the magic bullet is really a band
stop filter, I didn't look the patent up.

But no matter, it seems it serves more to organise the location of
standing waves rather than eliminate current past the trap.

Of course, we are all scratching our head about the technical elegance
or even feasibility of BPL (or lack of it, more to the point).

Owen
--

2677. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 07:54:37 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <XbYC6JK9anFEFAB5@ifwtech.co.uk>
Source record: 63138

Roy Lewallen wrote:
>John Popelish wrote:
>> I wish I could, but this is the first I have heard of such
>>instrumentation. That is why I would like to read more about it.
>
>Hopefully the poster mentioning the optical probe will explain a bit
>more. But I recall seeing optically coupled instrumentation used in an
>EMI screen room to couple signals in and out. To my knowledge, though,
>the probes themselves were conventional, and fiber optics were used
>only to replace connecting wires.

Such probes are routinely used for RFI, RF hazards and screened-room measurements, where connecting wires would disturb the fields or act as pathways for RF leakage.

They do have a disadvantage that might be relevant to this discussion: because the probe head has to be self-powered, and has to include some kind of encoder and optical transmitter as well as the normal current transformer, the battery and extra area of PC board will increase the probe's self-capacitance.

A different kind of fibre-optic probe is used in basic research on RF hazards, to measure very localized and very small temperature changes in simulated human heads and bodies. These microprobes are purely optical, and are sensing some temperature-dependent optical property of liquid crystals(?) at the probe tip.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2678. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 09:05:09 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <iaudnV5pDLSxGovZSa8jmw@karoo.co.uk>
Source record: 63139

Dave Oldridge wrote:

> Dan Andersson <dan@andersson.co.uk> wrote in
> news:SSKdnUw3lvL2fYjZSa8jmw@karoo.co.uk:
>
>> Big Nose wrote:
>>
>>> Currently I am looking into the problem of using a common antenna for
>>> two VHF transceivers. One operates 30 - 90 MHz and the other from 30
>>> - 512 MHz. They would both be tuned into seperate frequencies and
>>> need to share a common broadband, omni directional, vertical
>>> monopole.
>>>
>>> I think I am getting myself a bit confused (or should I say more
>>> confused), do I need to used a diplexer? Would a T piece not suffice
>>> as both sets would be tuned to different frequencies and seperation
>>> and harmonics would be considered? Would these factors not mean that
>>> the input impedance to the set tuned into the different frequency
>>> would remain high thus not effect matching?
>>
>>
>> Simple...
>>
>> Get a two port circulator. That'll solve your problem (but at a
>> price. Try E-Bay). At your low frequencies, try build one yourself.
>>
>> Regarding the impedance, that is not that problematic. You can
>> basically transform any impedance to your taste. You will incur signal
>> loss tho'.
>>
>> Also, as you unfortunately are looking at the lower end of the RF
>> spectra, all these parts will be bulky but it's still possible.
>
> Possible, but a bit tricky to set up, since you'll need quite a few db of
> isolation between the ports for this to work even reasonably. 60db would
> be enough for separations in the range of 10mhz or more, but below that,
> you're starting to need 75 or 80db in order to hear something on the
> other receiver.
>
> If it's only necessary to use one radio at a time, then maybe 25 or 30db
> would do it OK, since all you really need to do then is prevent receiver
> damage. But if it's desired to use both radios simultaneously, then the
> more isolation, the better.
>

>

Well, it's actually not that tricky!

If you use a dual port circulator, you will not have any problems.

The only problem is to find a broadband dual port circulator.

Dan

2679. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 10:06:34 UTC
From: Big Endian <nospam@nospam.com>
Message-ID: <nospam-BDB174.04064714032006@news-rdr-02.rdc-kc.rr.com>
Source record: 63140

In article <0ttRf.1569$Tv6.867@bignews5.bellsouth.net>,
"Hal Rosser" <hmrosser@bellsouth.net> wrote:

> That's right - a bolt of lightning comes streaking across several miles of
> dry air, finds the antenna with no problem, then upon seeing the loop, ducks
> back into the ground.
> But at least the loop will make the rain drip outside. It not useless.

I've read that most of the lightning starts at the ground first and
reaches into the sky to find the other end.

>
>
> "w_tom" <w_tom1@usa.net> wrote in message
> news:1142219157.314335.180560@j52g2000cwj.googlegroups.com...
> > Do you think a loop will stop what three miles of sky could not?
> > Effective protection is not about stopping a transient. That does not
> > work and is they myth even used to promote plug-in protectors. A most
> > trivial earth ground is a massive improvement in protection. That
> > incoming wire must be earthed - directly or through a protector -
> > before entering the building. That simplest earthing is many times
> > more effective than 100 loops. Effective for direct strkes - which
> > means induced trasnients would be made irrelevant.
> >
> > The US Forestry Service has documented that most direct strikes to
> > trees do not leave appreciable indication. Even a standard household
> > earth ground in conductive soil will provide protection from most
> > lightning strikes. Then we enhance that earthing for other, more
> > violent and less frequent direct strikes.
> >
> > Quality of earthing determines how many direct strikes will be
> > earthed without damage. Even some earthng to a single point is a
> > massive improvement in transistor protection. But the loop is about
> > as useful as bad science fiction. For loop to be effective, then loop
> > also must seriously degrade radio reception. How many reasons why that
> > loop is useless? Five?
> >
> > Robert11 wrote:
> > > Hello:
> > >
> > > Anyone have any thoughts on (hopefully not experiences) whether putting
> a
> > > loop of, e.g. 1 foot in diameter,
> > > on a coax run from an outdoor receive-only antenna has any merit as far
> as

> > > helping any emf lightning induced pulses from traveling into a house ?
> > >
> > > Have heard about this, but it's hard to believe it would actually do
> > > anything in practice.
> > > But,... ?
> > >
> > > B.
> >

2680. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 12:09:12 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dv6bp8$262$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63141

```
> > Reg Edwards wrote:
> > > From basic transmission line theory, the velocity of propagation
> along
> > > a coil is estimated by -
> > >
> > > V = 1 / Sqrt( L * C ) metres per second,
> >
> > So Reg, for a fixed installation, why would L and C change
> > much with frequency, like from 16 nS at 16 MHz to 3 nS at
> > 4 MHz? If we took it down to 1 MHz, would the delay go
> > below 3 nS?
> > --
> > 73, Cecil http://www.qsl.net/w5dxp
>
> ========================================
>
> Sorry Cec, I havn't the foggiest idea.
> ----
> Reg.
>
========================================

On second thoughts, since L and C are functions of a coil's physical
dimensions it must be something else which is changing with frequency.
----
Reg.
```

2681. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 12:27:06 UTC
From: w8ji@akorn.net
Message-ID: <1142339226.575932.283830@p10g2000cwp.googlegroups.com>
Source record: 63142

Ian White GM3SEK wrote:
> Such probes are routinely used for RFI, RF hazards and screened-room
> measurements, where connecting wires would disturb the fields or act as
> pathways for RF leakage.
> They do have a disadvantage that might be relevant to this discussion:
> because the probe head has to be self-powered, and has to include some
> kind of encoder and optical transmitter as well as the normal current
> transformer, the battery and extra area of PC board will increase the
> probe's self-capacitance.

There are two advantages to a fiber optic coupled probe. One advantage of fiber optic coupling from probes to indicator is the coupling leads from sensor to indicating instrument do not have a good direct path to earth or equipment like conventional probes. Ian points that out above.

I actually built a form of optical coupled probe for one of the measurements Cecil
rejected.

http://www.w8ji.com/building_a_current_meter.htm

In this case the information, current, is conveyed by light through air directly to my eye. I moved the indicator to the probe. For the purposes of this discussion, however, the real advantage might be different. Since it is unlikely anyone has a fiber-optic coupled probe (the fiber optical cable simply replaces the wire between

the sensor and the indicator or sensor information processing system) it is unlikely anyone can make a measurement proving Cecil's theory wrong.

This is what seems most logical to me:

The pattern has been after Cecil gets measurement results and finds they
disagree with his theory, he rejects the measurements. Measurements using a magnetically coupled indicator are rejected because they measure current that isn't moving (despite the fact it has to be a flowing current to produce a magnetic field).

The most logical thing any person can do when they repeatedly reject any disagreeing data supplied by multiple people using different equipment and methods is to come up with a measurement device no one has or can build.

The original debate was K3BU and W9UCW made a statement current is high

only in the first few turns of a loading inductor, and thus loading inductor Q did not matter for efficiency of an antenna. This effect was attributed to the coil replacing antenna length, and the sine shaped curve of antenna current must thus exist in the loading coil.

I proposed antenna losses were swamped out by ground losses in a vehicle, and because of very high ground losses the effects of coil resistance were diluted. I pointed out in a very small (in terms of wavelength) two-terminal device the current entering one terminal must always equal current leaving the other terminal, and that the current must be not be shifted in phase.

Yuri K3BU argued the coil replaced a certain number of degrees electrical height, and I
disagreed. I said a 20-degree long antenna with a loading coil did NOT have 70 degrees of antenna wound up in the coil.

I measured the inductor and found as quite logically anyone would expect that current ratio depended on the ratio of stray C from the coil itself (providing the third terminal) to load C at the open end of the coil.
Most people experienced in systems like this from an engineering standpoint agreed with me.

Somewhere about that time Cecil brought reflected waves into the discussion.
After a series of "what happens if" measurements were made. When measurements were made both Cecil and Yuri announced the measurements proved their
points. The person making measurements corrected those misstatements and pointed out the measurements didn't support Yuri and Cecil's claims.

See:

http://www.w8ji.com/agreeing_measurements.htm

The only recourse for Cecil and Yuri was to dismiss those measurements and
my measurements and demand new measurements.

When more new measurements again disagreed with the concept of huge current
or phase delay of current that was tied to degrees of antenna the coil replaces,
the only course was to again reject the disagreeing measurements.

So here we are today, two or three years later, still trying to find a measurement method that will agree with what Cecil and Yuri proposed, that a loading coil behaves as a coiled up antenna or transmission line

rather than behaving more like a lumped component in a small heavily loaded mobile antenna.

Since dozens of hours of measurements acceptable to most people were rejected, the only end to this debate would be to require a measurement with
instrumentation no one has. This way Cecil can say no one can prove him

wrong, and that allows him to continue to demand others agree with him.

In my opinion, the real advantage of optically coupled probes in this thread is no one is likely to have them. Since no one has them and that is all Cecil will accept, Cecil can not be proven wrong by a method Cecil will accept.

73 Tom

2682. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 13:22:03 UTC
From: Harry Gross <harry144@optonline.net>
Message-ID: <%rzRf.14$ny.6@fe10.lga>
Source record: 63143

I guess I'll have to break down, buy a copy of EZ-NEC and play with it:-)

By the way, are you suggesting that 90 degree rotation is all I'd need, simply because the dipole radiation pattern is so wide, broadside to the radiator? If that turns out to be true, then the problem becomes vastly easier to deal with, and could even be done mechanically by simply switching around the feed line to one dipole (easier to do with ladder line - the preferred feed line to a dipole - than coax, of course) although that might not be the BEST way to do it.

Harry

Roy Lewallen wrote:

> The two dipoles don't couple to each other, so you have a lot of options
> for feed systems. Transmission delay lines are one. Another is lumped
> circuit networks -- an L network can be designed to effect a range of
> phase shifts.
>
> I think you'll find, though, that you'll hardly be able to tell when you
> rotate the array in any increment smaller than 90 degrees, and unless a
> signal is pretty close to a null, even that rotation won't make a
> striking difference. It's a problem that's easily modeled, so I'd start
> by seeing just what I might gain from it before going to the trouble.
>
> Roy Lewallen, W7EL
>
> Harry Gross wrote:
>
>> Hi all,
>>
>> I'm toying with the idea of an 'electronically rotatable' dipole setup.
>>
>> Consider: a dipole oriented N/S
>> another dipole oriented E/W
>> They cross each other at the mid-point of each, forming a big
>> plus sign, like so:
>>
>> |
>> |
>> ----+----
>> |
>> |
>>
>> If you feed the N/S dipole, you get an E/W radiation pattern.

>> Similarly, if you feed the E/W dipole, you get a N/S radiation patter.
>>
>> If you feed the N/S and E/W dipoles simultaneously, you get a NW/SE
>> radiation pattern (for example), and if you flip the feed of either
>> one of them 180 degrees, then you get a NE/SW radiation pattern.
>>
>> So far, so good. Now for the fun part. If you feed one of the
>> dipoles with a signal that is only 90 degrees out of phase (or 270
>> degrees), you can get radiation patterns that take of in the NNW/SSE
>> or WNW/ESE directions, and if you feed the other dipole 90 or 270
>> degrees out of phase, you get NNE/SSW and ENE/WSW directions.
>>
>> What I am looking for is a circuit that can perform the necessary
>> phase delays, without having to use miles of coax coiled up in the
>> shack. Ideally, the circuit would be able to perform the phase shift
>> on all (or at least several) ham bands, so that it could feed into a
>> pair of fan-dipoles for operation on multiple bands.
>>
>> Anyone have any suggestions on just how to accomplish this? In the
>> extreme case, you could have a continuously adjustable system, that
>> would permit you to point the 'virtual dipole' in any direction at
>> all, which might be useful when attempting to null out an interfering
>> station off to the side of the desired signal. However, in practice,
>> I suspect that the eight positions mentioned above would be sufficient
>> to do the same thing (albeit with the possibility of somewhat more
>> signal loss due to fixed aiming directions).
>>
>> I seem to recall seeing a quote in the ARRL Handbook (or the ARRL
>> Antenna Book) from Roy Lewallen, indicating that there is no simple
>> way to do this. Am I mis-remembering (or mis-interpreting) what I read?
>>
>> I know that the military does this sort of thing with radar systems,
>> and has for some time. However, their budget is quite a bit bigger
>> than mine, so perhaps their solution isn't 'simple':-)
>>
>> Any thoughts on this, anyone?
>>
>> Harry Gross

2683. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 13:59:25 UTC
From: w8ji@akorn.net
Message-ID: <1142344765.533221.266200@i40g2000cwc.googlegroups.com>
Source record: 63144

Harry Gross wrote:
> I guess I'll have to break down, buy a copy of EZ-NEC and play with it:-)
>
> By the way, are you suggesting that 90 degree rotation is all I'd need,
> simply because the dipole radiation pattern is so wide, broadside to the
> radiator? If that turns out to be true, then the problem becomes vastly
> easier to deal with, and could even be done mechanically by simply
> switching around the feed line to one dipole (easier to do with ladder
> line - the preferred feed line to a dipole - than coax, of course)
> although that might not be the BEST way to do it.

Harry,

If you feed 90- degree delay, the result is a basically omni pattern.
It has some ripples, but not much.

I think all you would ever be able to use is one antenna, the other
antenna, or both antennas together either in or out of phase.

I can't see any reason to do anything like rotate phase or control
ratio, since the effects would be so small.

73 Tom

2684. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 14:02:05 UTC
From: Dan Richardson <k6mhe>
Message-ID: <ukid12ltiuee3kfmcha979ukkk3phg4vdq@4ax.com>
Source record: 63145

On Mon, 13 Mar 2006 23:14:29 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>The advice to avoid acetic-acid smelling RTV because of corrosion is
>passed along from person to person like an urban legend, but like an
>urban legend it's just about impossible to find anyone who's actually
>seen any corrosion result from its use. (A number of queries I've made
>over the years has produced just one, using a very early version of RTV.)

[snip]
>
>Roy Lewallen, W7EL

HI Roy,

I have been using a different product for over a decade that works
great - liquid vinyl tape. It does a heck of a job for sealing
water-tight connections and, like RTV, doesn'g get hard and crack.
You can buy it a most hardware stores.

Its easy to use and, like was suggest earlier in this thread, I first
wrap the connection with regular vinyl tape (a single layer) before
appling the liquid compond - its makes for much easier removal when
needed.

73
Danny

2685. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 14:28:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <mqARf.531$4L1.321@newssvr11.news.prodigy.com>
Source record: 63146

w8ji@akorn.net wrote:

Before I comment on your posting below, I think you can prove
to yourself that your measurements are flawed. You measured
3 nS delay through your coil at 4 MHz. Now perform the same
measurement at the self-resonant frequency. The delay through
the coil is known to be 15.6 nS at the self-resonant frequency.
If your delay measurement isn't 15.6 nS, then there is something
wrong with your methods. Better yet, measure the delay at 1,
2, 4, 8, &16 MHz and report the results.

> ... it is unlikely anyone can prove Cecil wrong.

That's because in order to prove me wrong, you have to prove
yourself right. You simply haven't done that because you refuse
to engage me at a technical level. You have ignored my technical
questions and refused to discuss the technical details. Many
readers have noticed that, wonder why, and have commented on
it in emails to me.

> This all seems logical to me, because Cecil has asked for measurements.
> The pattern has been after he gets measurement results and finds they
> disagree with his theory, he has to blame the difference on something.

Tom, your measurements agree perfectly with my theory. You are
measuring standing wave current. That standing wave current
magnitude is pictured in every good book on antennas. Kraus
also shows the phase which, for a thin wire dipole, is fixed
at zero from tip to tip on the antenna. It is understandable
why you measured zero standing wave current phase shift through
the coil. THE STANDING WAVE CURRENT PHASE SHIFT IS ZERO WHETHER
THE COIL IS IN THE CIRCUIT OR NOT!

Since the phase of the standing wave current is fixed and
unchanging whether the coil is in the circuit or not, why do
you think measuring that unchanging phase around a coil proves
anything?

> I proposed antenna losses were swamped out by ground losses in a
> vehicle, and because of very high ground losses the effects of coil
> resistance were diluted.

I agree with that and have never argued otherwise.

> I measured the inductor and found as quite logically anyone would
> expect that current ratio depended on the ratio of stray C from the
> coil to load C at the open end of the coil. Yuri K3BU argued the coil

> replaced a certain number of degrees electrical height, and I
> disagreed.

The following reports a 10-20 degree phase shift through most coils.

http://lists.contesting.com/archives/html/Towertalk/2003-11/msg00540.html

> Most people experienced in systems like this from an engineering
> standpoint agreed with me. Somewhere about that time Cecil brought
> reflected waves into the discussion.

Those "most people" don't understand forward and reflected waves on a standing-wave antenna. You have proven by your postings here that you do not understand forward and reflected waves on a standing-wave antenna like a 75m bugcatcher mobile antenna. Worse yet, you refuse to discuss the antenna at a technical level and have simply sandbagged your misconceptions.

I remember when you were using the lumped inductance feature of EZNEC to try to prove your point, certainly an invalid proof. When we started this thread, it was obvious that you didn't know the standing wave current phase is fixed near zero degrees so measuring it is futile.

> After a series of "what happens if" Cecil wanted measurements. When
> they were made, he and Yuri announced the measurements proved their
> points.

Yes, they did prove that the current at the ends of the coil were NOT equal. You said they were. I said they were not. Out of all of your and Roy's measured results, the current was equal in only the case of the small toroidal coil and that's because it was located at a standing wave current maximum (loop).

> When the person making the measurements corrected those
> misstatements and pointed out the measurements didn't support their
> claims, the only logical course was to discredit the measurements and
> ask for new ones.

You sure have selective memory, Tom. I fully accepted your standing-wave current measurements. But standing-wave current measurements cannot be used to measure the traveling-wave delay through a coil. That should be obvious to everyone by now. The delay through the coil causes a phase shift in the forward wave and the reflected wave, not in the standing wave. THE PHASE OF THE STANDING WAVE CURRENT IS KNOWN NOT TO CHANGE AND THAT'S EXACTLY WHAT YOU MEASURED, VIRTUALLY NO SHIFT.

Kraus agrees. Figure 14-2 of "Antennas For All Applications", 3rd edition shows a graph of the phase of the standing wave current. That phase is zero tip-to-tip for a thin-wire 1/2WL dipole.

> When new measurements again disagreed with the concept of huge current
> or phase delay of current that was tied to degrees the coil replaces,

> the only course was to reject those measurements.

THOSE MEASUREMENTS WERE NOT REJECTED! They were accepted as perfectly valid measurements of standing wave current. Those characteristics are pictured in Kraus and your measurements agree perfectly with them. Your argument is a strawman. The fact is that a standing wave measurement CANNOT yield the current delay through the coil any more than it can yield the current delay through a wire. YOU CANNOT MEASURE THE DELAY THROUGH THE COIL USING CURRENT KNOWN NOT TO CHANGE PHASE!

> So here we are today, two or three years later, still trying to find a
> measurement that will agree with what Cecil and Yuri proposed or for
> another person of reasonable engineering experience to agree with the
> notion the coil behaves as a coiled up antenna or transmission line
> rather than behaving more like a lumped component in a small heavily
> loaded mobile antenna.

This is not about you or me or Yuri. It is about getting down to the truth. Yet you rave on and on about personalities. Why don't you discuss technical issues instead of personalities?

There is a phase shift in the forward current through the loading coil. There is a phase shift in the reflected current through the loading coil. Those phasors are rotating in opposite directions so the net phase is fixed. You can measure standing wave current phase in thousands of experiments from now to kingdom come and you will not be measuring the phase shift of the forward and reflected current through the coil. Your measurements, so far, are meaningless. You have NEVER measured the delay through the coil.

I guess I'm going to have to draw you some pictures and post them on my web page.

> Since dozens of hours of measurements acceptable to most people were
> rejected, the only solution would be to require a measurement with
> instrumentation no one has.

I fully accept your standing wave current measurements, Tom, but standing wave current measurements will not yield the information that we are after. We need to know the phase shift in the forward and reflected currents through the coil. Standing wave measurements simply will not yield that information. Self-resonance measurements will yield that information. The delay through a coil that is self-resonant on 16 MHz is 15.6 nS.
--
73, Cecil http://www.qsl.net/w5dxp

2686. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 14:34:46 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <awARf.533$4L1.265@newssvr11.news.prodigy.com>
Source record: 63147

Reg Edwards wrote:
> Having started it, I havn't been taking much notice of this
> long-winded thread. Its all too clever for poor little me! ;o)

Just curious, Reg, are you familiar with phasors used to
represent traveling waves where the phasor has a rotation
about the origin proportional to the frequency? Are you
familiar with the phasor addition of two of those waves
traveling in opposite directions forming standing waves?
--
73, Cecil http://www.qsl.net/w5dxp

2687. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 14:37:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%yARf.535$4L1.80@newssvr11.news.prodigy.com>
Source record: 63148

Roy Lewallen wrote:
> Another is lumped
> circuit networks -- an L network can be designed to effect a range of
> phase shifts.

Don't you find it strange that lumped-circuits cause phase
shifts sometimes (above) and sometimes not (loading coils)?
--
73, Cecil http://www.qsl.net/w5dxp

2688. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 14:45:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zGARf.537$4L1.297@newssvr11.news.prodigy.com>
Source record: 63149

Reg Edwards wrote:
> On second thoughts, since L and C are functions of a coil's physical
> dimensions it must be something else which is changing with frequency.

Or maybe nothing is changing appreciably over relatively
small frequency excursions. Maybe the measurements are
not measuring what someone thinks they are measuring.

The only experiment so far that has actually measured the
delay through a coil is the self-resonant frequency
measurement.

Tom's and Roy's results are perfectly consistent with
the measurement of standing wave current whose phase
is known to be constant and unchanging. That measurement
yields no new information.
--
73, Cecil http://www.qsl.net/w5dxp

2689. Re: Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 15:08:14 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <gtmd121fkiq284r3u5n0in12a99d1dj7hg@4ax.com>
Source record: 63150

On Mon, 13 Mar 2006 23:04:03 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Owen Duffy wrote:
>> You probably haven't thought of powerlines as an antenna, the BPL
>> industry pretends they aren't, but they are.
>>
>> A recent news item is about a new patent for a "Filter for segmenting
>> powerlines for communications" (US 7,005,943). It is described:
>>
>> "There is provided a method for blocking a portion of energy of a
>> signal in a power line. The method includes equipping a high frequency
>> magnetic core with a coil, connecting a capacitor across terminals of
>> the coil to create a resonant circuit that resonates at a frequency of
>> the signal, and placing the magnetic core around the power line, at a
>> location where the blocking is desired."
>>
>> Hmmm, a trap! Without getting bogged down in the details of the coil
>> and the current / phase relationships, is this likely to be effective?
>> A parallel resonant trap in an antenna doesn't eliminate current
>> beyond the trap at the frequency of trap resonance. Will it make the
>> region of the powerline between the injector and the trap a better
>> radiatior for the same injector power?
>>
>> Thoughts?
>>
>
>You're correct that a trap doesn't stop current -- or energy -- at the
>trap. The lines on both sides couple with each other, allowing
>substantial current to flow on the side away from the source. All the
>trap does is guarantee a current null at some point. A quarter wave
>away, a current maximum will occur. In fact, a trap can increase current
>coupled into a wire if it breaks a formerly non-resonant wire into
>pieces of which one or more are near resonance.
>
>Roy Lewallen, W7EL

Hmmm. Interesting. I'm too busy to think much about this at the
moment but Devoldere has something in his book (p. 9-27 in my old
Third Edition) about decoupling a tower from ground using a "linear"
parallel-tuned trap.

Does this not work?

Wes

2690. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 15:16:18 UTC
From: Mike
Message-ID: <67BRf.873$tN3.831@newssvr27.news.prodigy.net>
Source record: 63151

I was visiting a local SGC dealer years ago as he was troubleshooting a brand new antenna tuner that was not working. When he opened the plastic case, that special RTV acidic smell almost knocked us over and all the tinned circuit board traces and exposed wiring were corroded and black. SGC claimed they used the wrong type of RTV on a batch of tuners that was not for electronics use.
Mike

Roy Lewallen wrote:
> The advice to avoid acetic-acid smelling RTV because of corrosion is
> passed along from person to person like an urban legend, but like an
> urban legend it's just about impossible to find anyone who's actually
> seen any corrosion result from its use. (A number of queries I've made
> over the years has produced just one, using a very early version of RTV.)
>
> I've used the acetic-acid smelling stuff for decades on a variety of
> metals including tinned and untinned wire, aluminum, nickel, and copper
> circuit boards, and never seen a hint of corrosion. But formulations
> vary widely, and my experience certainly isn't exhaustive. I'm not
> entirely convinced, though, that among the many formulations there
> aren't others, which don't have that smell, which might be corrosive to
> some materials.
>
> People who worry about this should buy an industrial product and stay
> with it, since there's a much better chance the formulation won't change
> in the future without notice.
>
> Roy Lewallen, W7EL

2691. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 15:22:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <NcBRf.875$tN3.259@newssvr27.news.prodigy.net>
Source record: 63152

w8ji@akorn.net wrote:
> The pattern has been after Cecil gets measurement results and finds
> they disagree with his theory, he rejects the measurements.

Not true, Tom, please stop saying such. I fully accept and embrace
your measurements of standing wave current, already known to possess
unchanging phase. Kraus has a graph of exactly that. Your measurements
are PERFECTLY consistent with standing wave current measurements. What
they are not consistent with is traveling wave current which undergoes
a phase shift through the coil as yet unmeasured by you.

Why don't you stop talking about you and me and discuss the technical
issues?

> The most logical thing any person can do when they repeatedly reject
> any disagreeing data supplied by multiple people using different
> equipment and methods is to come up with a measurement device no one
> has or can build.

That's not true either. A lot of hams can measusre the self-resonant
frequency of a coil and know the coil exhibits a 90 degree phase
shift at that self-resonant frequency.

> The only recourse for Cecil and Yuri was to dismiss those measurements
> and my measurements and demand new measurements.

This is ancient history, Tom. I have learned a lot since then and
would appreciate you dragging yourself back into the present so
we can discuss technical issues, rather than personalities. For
the present discussion, what happened in the past simply doesn't
matter as I don't believe the same thing I believed three years
ago. Things are not as simple as I first thought.

> So here we are today, two or three years later, still trying to find a
> measurement method that will agree with what Cecil and Yuri proposed,
> that a loading coil behaves as a coiled up antenna or transmission line

Three years ago, one could not use constant phase standing wave
current to measure the delay through a coil. Today, one cannot
use constant phase standing wave current to measure the delay
through a coil. Nothing has changed. Standing wave current is
what it is. Making the same measurements three years apart
doesn't prove anything new.

> Since no one has them and
> that is all Cecil will accept, Cecil can not be proven wrong by a
> method Cecil will accept.

Again, a false statement. I am not asking for fiber optic measurements. All I am asking is that you measure the delay through your coil using exactly the methods as before, and report the results for 1 MHz, 2 MHz, 4 MHz, 8 MHz, and 16 MHz, the self-resonant frequency for which the delay is already known. When you do that, you will probably know what is wrong with your conclusions. There's nothing wrong with your experiment if you really want to measure the phase shift of a standing wave current known to have unchanging phase. Your measurements are perfectly consistent with the laws of physics.

Please stop re-hashing the past. This is three years later. I've learned a lot in those 3 years and have changed my mind about a lot of things. Please just discuss the technical details and leave the personalities out of it.

If the only way you and Roy can dispatch me is at a personal ad hominem level, doesn't that speak volumes about not being able to dispatch me at a technical level? Are you guys engineers or just attack dogs?

For instance, compare the ad hominem stuff in your above posting to the technical content.
--
73, Cecil http://www.qsl.net/w5dxp

2692. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 17:00:38 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142355638.246812.259970@e56g2000cwe.googlegroups.com>
Source record: 63153

Get a life, Cecil.

2693. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 17:13:14 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142356394.709596.163040@j52g2000cwj.googlegroups.com>
Source record: 63154

Tom wrote, "I can't see any reason to do anything like rotate phase or control
ratio, since the effects would be so small."

One reason to rotate the pattern (however one does it) is to use the nulls to kill an interfering signal when receiving. Other than that, there's certainly not much reason. Even with one-or-the-other of a pair of crossed dipoles, at 45 degrees azimuth from max on a perfect dipole pattern you're only down about 4dB from max, and if you add in the feed-both-in-phase (or 180 shift), the patterns cross at about half a dB down from max. Note though that the pattern for both fed in phase is a bit broader than that of a single dipole.

Harry: you can simulate all this with the free demo version of EZNEC, I'm sure.

Cheers,
Tom

2694. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 17:25:20 UTC
From: richardharrison@webtv.net
Message-ID: <2814-4416FC80-304@storefull-3257.bay.webtv.net>
Source record: 63156

Cecil, W5DXP wrote:
"Kraus agrees."

Pity the fool that argues with Terman or Kraus!
In Kraus` Figure 14-2 of the 3rd edition of "Antennas", the 1/2-wave is resonant and shows no phase shift from end to end. In Figure 14-4, phase is shown to make an abrupt phase transition at a point 1/2-wave back from the open circuit at the tip of the antenna. This is predictable from the behavior of an open-circuited transmission line as shown by Terman in Fig. 4-7 in his 1955 edition.

Kraus` Figure 23-21 shows how a self-resonant coil can replace a short-circuited 1/4-wave stub in a phase-reversing trap. If you don`t have the 3rd edition of "Antennas", get it.

Cecil wrote: "I am not asking for fiber optic measurements."

Very likely they aren`t necessary. I`ve measured currents along antennas draging a sampling loop along them with a rope. A transit determined the position and its telescope made the r-f ammeter in the loop readable.

Surely a loop and its ammeter can be small enough not to upset the measurements if you use enough power and have a low enough frequency. As Richard Clark might say: "We don`t need no stinkin` fiber optics."

Best regards, Richard Harrison, KB5WZI

2695. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 17:36:54 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <j6CdnTBe-qB4YIvZRVn-gA@adelphia.com>
Source record: 63155

Cecil Moore wrote:
> John Popelish wrote:
>
>> ... I see no reason to assume the transmission line method (delay
>> independent of frequency) strictly applies. It might, but it would
>> take more than you saying so to assure me that it is a fact.
>
>
> Assume the environment of the coil is fixed like the variable
> stinger measurement I reported earlier. Besides the frequency
> term, the phase constant depends upon L, C, R, and G as does
> the Z0 equation. Why would the L, C, R, and G change appreciably
> over a relatively narrow frequency range as in my bugcatcher coil
> measurements going from 6.7 MHz to 3.0 MHz?

We are not talking about L, C, R, or any other inherent property changing with frequency. We are talking about the delay of a current wave in a single direction (anybody have a pair of directional coupler current probes?) through a complex component that has several different mechanisms that contribute to the total current passing through it. It is the vector sum (superposition) of those current components that is in question. Over a narrow frequency range, it is conceivable to me, that the phase (delay) of that sum might shift, dramatically, though any component of that sum might change its magnitude only slightly (no faster than in proportion to the frequency), and the phase of that component might change not at all.

> And I didn't mean to imply that the delay is "independent" of
> frequency, just that it is not nearly as frequency dependent
> as Tom's measurements would suggest. If Tom made his measurements
> from 1 MHz to 16 MHz, what do you think the curve would look like?
>
> Freq 1 2 4 8 16 MHz
> Delay ___ ___ 3 ___ 16 nS
>
> That looks non-linear to me. How about you?

Definitely nonlinear, just like impedance is very nonlinear as the frequency passes through any resonance. This is why I am suspicious of a measurement made at resonance, being extrapolated to non resonant conditions.

2696. Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 17:44:30 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <u0cje3-6h5.ln1@p400bob.personal.cox.net>
Source record: 63157

On a learning curve here. I'll admit I am after a fast answer or two.

Using 4nec2 to model what will likely be a 2m antenna used at the home QTH. Its an extended double zepp. ie two 5/8's in phase with a hairpin like centre section, the whole thing made of 1/2" copper and fed at 200 ohms with a 4:1 balun or 100 ohm Q section. I have also included the mast but havent really adjusted for best gain. There will be a quad on the other side that isnt modeled yet.

Looking good so far but;

- Is the diameter of the source wire an issue?

- How do I allow for the use of copper pipe 90 degree elbows used in construction. If I model them as (say) a extra single wire at 45 degrees to mimic the radious I run into segment len/diameter limits.

Any thoughts or feedback welcome. Nec file attached inline. (Apologies for the line breaks) I have yet to go through convergence testing and playing with numbers of segments in the shorter sections.

Cheers Bob W5/VK2YQA

```
CE
GW 1 13 0 0 15.19 0 0 16.38 0.012
GW 2 3 0 0 16.38 0.28 0 16.38 0.012
GW 3 3 0.28 0 16.38 0.41 0 16.38 0.012
GW 4 1 0.41 0 16.38 0.41 0 16.45 0.012
GW 5 3 0.41 0 16.45 0.28 0 16.45 0.012
GW 6 3 0.28 0 16.45 0 0 16.45 0.012
GW 7 13 0 0 16.45 0 0 17.64 0.012
GW 8 1 0.28 0 16.45 0.28 0 16.38 0.012
GW 9 81 0.501 0 0 0.501 0 17.7 0.025
GE 1
EK
EX 0 8 1 0 1 0
GN 2 0 0 0 14 8.e-3
FR 0 1 0 0 146 0
EN
```

2697. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 18:25:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <MUDRf.951$tN3.455@newssvr27.news.prodigy.net>
Source record: 63158

K7ITM wrote:
> Get a life, Cecil.

Take the impedance at a point on a transmission line
with reflections. Install a series inductor. It
causes an arc on a Smith Chart. How can an arc
on a Smith Chart equate to a phase shift of
zero degrees?
--
73, Cecil http://www.qsl.net/w5dxp

2698. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 18:35:31 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <T1ERf.952$tN3.633@newssvr27.news.prodigy.net>
Source record: 63159

John Popelish wrote:
> We are not talking about L, C, R, or any other inherent property
> changing with frequency.

The velocity factor of the coil is based on those quantities
and can be calculated.

The velocity factor of a transmission line is based on those
quantities and can be calculated.

>> Freq 1 2 4 8 16 MHz
>> Delay ___ ___ 3 ___ 16 nS
>>
>> That looks non-linear to me. How about you?
>
> Definitely nonlinear, just like impedance is very nonlinear as the
> frequency passes through any resonance.

Care to fill in the blanks above?

> This is why I am suspicious of
> a measurement made at resonance, being extrapolated to non resonant
> conditions.

Self-resonance is simply where the round trip delay through
the coil puts the forward and reflected voltages and the forward
and reflected currents either at zero degrees or 180 degrees.

That's what happens at an open-ended 1/4WL stub.

That's also what happens at the feedpoint of a resonant
standing wave antenna like a 75m mobile bugcatcher antenna.
Resonant mobile antennas are "self-resonant antenna systems".
--
73, Cecil http://www.qsl.net/w5dxp

2699. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 18:40:37 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <703e12dnr24fmv2dhvbbuk8qpq03gt7jql@4ax.com>
Source record: 63160

On 14 Mar 2006 02:55:32 -0800, w8ji@akorn.net wrote:

>In my opinion, the real advantage of optically coupled probes in this
>thread is no one is likely to have them.

Hi Tom,

Having built nigh on an hundred, you are right - I don't have one now.
I don't plan to build anymore either as it would do nothing to lower
the text noise floor.

I've enjoyed the speculation tho'.

73's
Richard Clark, KB7QHC

2700. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:03:58 UTC
From: jpopelish@rica.net
Message-ID: <1142363038.740587.153310@v46g2000cwv.googlegroups.com>
Source record: 63161

Cecil Moore wrote:
> John Popelish wrote:
> > We are not talking about L, C, R, or any other inherent property
> > changing with frequency.
>
> The velocity factor of the coil is based on those quantities
> and can be calculated.

I am not familiar with the velocity factor of coils.

> The velocity factor of a transmission line is based on those
> quantities and can be calculated.

Not quite. The velocity factor in transmission lines is based on
ratios:
capacitance per length, and inductance per length.

Where do you get the equivalent length numbers when dealing with semi
lumped inductors?

> >> Freq 1 2 4 8 16 MHz
> >> Delay ___ ___ 3 ___ 16 nS
> >>
> >> That looks non-linear to me. How about you?
> >
> > Definitely nonlinear, just like impedance is very nonlinear as the
> > frequency passes through any resonance.
>
> Care to fill in the blanks above?
(snip)

My guesses at those numbers without a well tested method are as useful
as yours.

2701. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:04:48 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <HfTGLfCQPxFEFAD7@ifwtech.co.uk>
Source record: 63163

Mike wrote:
>Roy Lewallen wrote:
>> The advice to avoid acetic-acid smelling RTV because of corrosion is
>>passed along from person to person like an urban legend, but like an
>>urban legend it's just about impossible to find anyone who's actually
>>seen any corrosion result from its use. (A number of queries I've made
>>over the years has produced just one, using a very early version of RTV.)
>> I've used the acetic-acid smelling stuff for decades on a variety of
>>metals including tinned and untinned wire, aluminum, nickel, and
>>copper circuit boards, and never seen a hint of corrosion. But
>>formulations vary widely, and my experience certainly isn't
>>exhaustive. I'm not entirely convinced, though, that among the many
>>formulations there aren't others, which don't have that smell, which
>>might be corrosive to some materials.
>> People who worry about this should buy an industrial product and
>>stay with it, since there's a much better chance the formulation
>>won't change in the future without notice.
>> Roy Lewallen, W7EL

>I was visiting a local SGC dealer years ago as he was troubleshooting a
>brand new antenna tuner that was not working. When he opened the
>plastic case, that special RTV acidic smell almost knocked us over and
>all the tinned circuit board traces and exposed wiring were corroded
>and black. SGC claimed they used the wrong type of RTV on a batch of
>tuners that was not for electronics use.

Most likely because they closed the cases before the silicone had cured,
not realising they were trapping the acetic acid vapour inside. The same
can happen in balun boxes and the like.

It would be interesting to know if there have been *any* cases that
didn't also involve some kind of closed situation, or possibly a layer
that was too thick to let the vapour diffuse out.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2702. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:08:18 UTC
From: w8ji@akorn.net
Message-ID: <1142363298.134906.139130@e56g2000cwe.googlegroups.com>
Source record: 63162

Richard Clark wrote:
> Having built nigh on an hundred, you are right - I don't have one now.
> I don't plan to build anymore either as it would do nothing to lower
> the text noise floor.
>
> I've enjoyed the speculation tho'.

The two most humorous parts of this entire thing:

1.) RF current can stand still, yet cause current in a transformer secondary.

2.) We have to use a "directional current coupler" to sort current flowing one way from current floing the other, because of standing wave current.

This entire thing has become almost laughable. It looks like the thread has regressed to the point where people no longer understand directional couplers or current transformers.

Anyone who knows how a directional coupler works is rolling around on the floor laughing at the suggestion of sorting "forward current" from "reflected current".

It appears this thread has reached the lowest level, where impossible to build instrumentation is now demanded as the only acceptable proof.

What a trip!

73 Tom

2703. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:22:48 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <cKERf.961$tN3.309@newssvr27.news.prodigy.net>
Source record: 63164

jpopelish@rica.net wrote:
>>The velocity factor of a transmission line is based on those
>>quantities and can be calculated.
>
> Not quite. The velocity factor in transmission lines is based on
> ratios: capacitance per length, and inductance per length.

There exist formulas for calculating the Z0 and VF of
helical transmission lines. I'll bet Reg can do it.
A coil has a capacitance per length and inductance
per length.
--
73, Cecil http://www.qsl.net/w5dxp

2704. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:24:47 UTC
From: richardharrison@webtv.net
Message-ID: <28826-4417187F-1058@storefull-3255.bay.webtv.net>
Source record: 63165

Art Unwin wrote:
"I read as far as the word "tho a" and you made my day, you confirmed what I suspected that all antennas are based around yagis and not about antennas in general which is exactly the point I made earlier."

Glad to see you posting again, Art.

Kraus produced an organization chart of antennas on page 56 of the 3rd edition of "Antennas". In the Kraus plan, the "Yagi-Uda" is among the "End Fires".

The topic is: "Yagi Antenna Question".

Roy responded with:
"Suppose you have a two-element driven array with the elements spaced a quarter wave apart and 90 degrees our of phase."

This driven antenna produces a nice null to the rear as a Yagi can, but the Yagi is a parasitic array, not a driven array.

In this forum, a participant is free to take the discussion in any desired direction and other participants are just as free to respond or not any way they want to. It`s freedom of choice!

Best regards, Richard Harrison, KB5WZI

2705. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 19:54:35 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <Ipadnf58QPXmgorZnZ2dnUVZ_sidnZ2d@comcast.com>
Source record: 63166

Cecil and Roy, Please stop Ad Hominem.

Keep to the subject where we can disagree or agree. Hopefully, some of
us will learn.

Cecil Moore wrote:

> Roy Lewallen wrote:
>
>> I believe it's relevant to the discussion at hand on this group, so
>> I'll share it here, ...
>
>
> So you believe my personal feelings about you are relevant
> to a technical discussion???? Exactly which technical
> parameters are affected by my feelings about you?
>
>

2706. Re: Loop In Coax Help Prevent Lightning Induced Surges ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:23:26 UTC
From: richardharrison@webtv.net
Message-ID: <9127-4417263E-1072@storefull-3253.bay.webtv.net>
Source record: 63168

Steve wrote:
"I wouldn`t think anything but extremely good grounding at the antenna will do much."

That helps.

Company I retired from had radios all over the world. Most base stations used Andrew 1/4-wave stainless steel folded monopoles. These were securely grounded to the tower. The tower had a separate ground rod connected outside the base to each leg of the tower by heavy strap or cable. These radios suffered no lightning damage, despite repeated hits.

Kraus has this to say in kis 3rd edition of "Antennas" on pages 719 and 720:
"---a short-circuited lambda/4 section of coaxial line is connected in parallel with the antenna terminals. This widens the impedance bandwidth and also places the stub antenna at dc ground potential. This is desirable to protect the transmission line from lightning surges."

Whenever we could not use a folded antenna with a single-frequency radio, we connected the shorted stub directly across the antenna and grounded the coax at the tower top. It works.

Best regards, Richard Harrison, KB5WZI

2707. Re: Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:23:43 UTC
From: dplatt@radagast.org
Message-ID: <121e9ifn2nqlocb@corp.supernews.com>
Source record: 63167

In article <t3gc12hgeam243af8vg7s5tell59lmkts1@4ax.com>,
Owen Duffy <owen@no.where> wrote:

>"There is provided a method for blocking a portion of energy of a
>signal in a power line. The method includes equipping a high frequency
>magnetic core with a coil, connecting a capacitor across terminals of
>the coil to create a resonant circuit that resonates at a frequency of
>the signal, and placing the magnetic core around the power line, at a
>location where the blocking is desired."
>
>Hmmm, a trap! Without getting bogged down in the details of the coil
>and the current / phase relationships, is this likely to be effective?

Might well be. A classic method of blocking single-frequency
interference current from flowing down a feedline is to stick a
parallel-resonant trap next to it. The commonest variety I've seen
described is a wire loop with tuning capacitor. I have no reason to
believe that a core-based version would not work.

>A parallel resonant trap in an antenna doesn't eliminate current
>beyond the trap at the frequency of trap resonance. Will it make the
>region of the powerline between the injector and the trap a better
>radiatior for the same injector power?

Could easily do so.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

2708. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:37:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CQFRf.59880$dW3.21203@newssvr21.news.prodigy.com>
Source record: 63169

w8ji@akorn.net wrote:
> 1.) RF current can stand still, yet cause current in a transformer
> secondary.

Please provide a technical response to the following.

Hecht, in "Optics" says of standing waves of light in space:
"Its profile *DOES NOT MOVE* through space; it is clearly not
of the form f(x+vt). At any point x = x', the amplitude is a
constant equal to 2Eot*sin(kx') and E(x',t) [the electric
field] varies harmonically as cos(wt)." page 289, 4th edition.

The 'z' movement for a standing wave current magnitude
along a wire is completely divorced from the frequency of
the wave. Its profile *DOES NOT MOVE* through the wire.
Same as light standing waves above. It is not of the
form f(z+wt).

Since standing waves of light in space do not move, why is it
surprising that standing waves of RF on a wire do not move
for exactly the same reason since they have identical equations?
The standing wave energy in the H-field of RF standing waves
will certainly cause current in a transformer secondary just
as the standing wave light electric field will activate a
light detector.

> 2.) We have to use a "directional current coupler" to sort current
> flowing one way from current flowing the other, because of standing wave
> current.

There really may be humor in that statement which I never made.
I've never heard of a "directional current-only coupler". If
anyone knows of one, it sure would solve the measurement problem.

> Anyone who knows how a directional coupler works is rolling around on
> the floor laughing at the suggestion of sorting "forward current" from
> "reflected current".

And I'm one of them. I've never said there existed such a device,
just that if it did exist, it would solve the measurement problem.
As it is, we haven't solved the measurement problem. The only means
I've seen of actually measuring the phase shift through a coil is
using the self-resonance method. Measuring the phase shift of
standing waves won't work because STANDING WAVES HAVE NO PHASE
SHIFT WHETHER THERE'S A COIL IN THE CIRCUIT OR NOT!

> It appears this thread has reached the lowest level, where impossible
> to build instrumentation is now demanded as the only acceptable proof.

It was a wish, not a demand. But we can indeed separate out the
forward wave from the reflected wave in a transmission line by
using a directional coupler calibrated for the Z0 of the line.
We can then carry those concepts over to a standing wave antenna,
according to Balanis.

So consider this experiment.

coil
source---50 ohm coax---X-////-Y---50 ohm coax---Load

We have directional couplers installed at 'X' and 'Y' and
we can in theory look at the phases of the forward and
reflected currents on each side of the coil. Will the
forward and reflected currents through the coil show
a phase shift or not? Seems we should start at a pretty
low frequency (low reactance) and work our way up. I
think the phase shift pattern would be clear.

Note that a cap to ground to the left of 'X' and a cap
to ground to the right of 'Y' would result in a pi-net
tuner. Wonder if there's any phase shift through the
coil in a pi-net tuner? Is a pi-net tuner a "phasing
network"?

How could the coil cause an arc on the Smith Chart
without changing the phase of the wave through the coil?
--
73, Cecil http://www.qsl.net/w5dxp

2709. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:41:16 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <MTFRf.59881$dW3.42202@newssvr21.news.prodigy.com>
Source record: 63170

Dave wrote:

> Keep to the subject where we can disagree or agree.

Done! See my postings of today. I apologize for my
previous emotional outbursts.
--
73, Cecil http://www.qsl.net/w5dxp

2710. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:52:57 UTC
From: richardharrison@webtv.net
Message-ID: <9127-44172D29-1073@storefull-3253.bay.webtv.net>
Source record: 63172

Tom, K7ITM wrote:
"I tried "quadrature variometer" with no real luck."

I found a posting from qsl net that looked interesting. You might look at the goniometer on page 1050 of Terman`s 1955 edition.

Best regards, Richard Harrisn, KB5WZI

2711. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 20:56:31 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <36GRf.53899$H71.37105@newssvr13.news.prodigy.com>
Source record: 63171

Cecil Moore wrote:
> John Popelish wrote:
>
>> We are not talking about L, C, R, or any other inherent property
>> changing with frequency.
>
>
> The velocity factor of the coil is based on those quantities
> and can be calculated.
>
>

What's the formula, Cecil? Also, what is the dominant mode
of a single wire, loading-coil transmission line: TE, TM,
TEM, or what? If not TEM, how do you calculate the cutoff
frequency? If I terminate one of these things in the
right impedance will it act like an infinite transmission line?
Given your loading coil terminated in a given impedance, what is
the expression for the impedance looking into it? I suppose you also
have something that will tell us how to find your coil's characteristic
impedance; o.k., out with it. All this bluster and threatening rhetoric
aren't advancing the acceptance of your crackpot theory one inch, Cecil.
I don't see anything wrong with at least attempting to characterize a
loading coil as a transmission line as long as the attempt is done
dispassionately with real theory and an acceptance of the possibility
of failure as part of the effort. Desperately thinking up excuses for
an idea you made up in your head, and becoming emotionally distraught
when people don't buy those excuses, is a waste of your time and
everyone else's.
73,
Tom Donaly, KA6RUH

2712. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 21:21:47 UTC
From: w8ji@akorn.net
Message-ID: <1142371307.650160.117590@j33g2000cwa.googlegroups.com>
Source record: 63173

> > Anyone who knows how a directional coupler works is rolling around on
> > the floor laughing at the suggestion of sorting "forward current" from
> > "reflected current".
>
> And I'm one of them. I've never said there existed such a device,
> just that if it did exist, it would solve the measurement problem.
> As it is, we haven't solved the measurement problem.

I've solved the measurement problem. I measured current and voltage
levels and phase of each.

I've measured time delay of current appearing at the coil output
compared to input.

> We have directional couplers installed at 'X' and 'Y' and
> we can in theory look at the phases of the forward and
> reflected currents on each side of the coil. Will the
> forward and reflected currents through the coil show
> a phase shift or not?

With all the respect I can muster, here we go again Cecil.

Current is current. Voltage is voltage.

A traditional directional coupler works by comparing voltage across the
line at any one point to current in the line at that same point. The
current sampling device is summed at the operating frequency with the
voltage sampling device, and the resulting voltage is measured. When
voltage and current are in phase, the detected voltage levels add. When
they are fully out of phase they subtract.

Now we could build a transmission line system of measuring SWR that
would work the very same way (normally done at VHF). Or we could build
a line section that allows us to slide a probe along it and measure
voltage or current nodes and finding maximum and minimum calculate SWR.

In every single device we would be able to build, we would never be
able to sort reflected current from forward because current is current.
There really isn't any such thing as current traveling two directions
at one past one point in a system.

You have taken this argument to an absolute dead end, because you
insist current can flow two directions at the same time at one single
point in a system.

You are demanding a measurement method that uses a device that cannot
be built to measure something that does not exist. That is either

humorous, sad, or frustrating. It sure isn't science.

73 Tom

2713. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 21:45:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CPGRf.53909$H71.38050@newssvr13.news.prodigy.com>
Source record: 63174

Tom Donaly wrote:
> What's the formula, Cecil?

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (32)

The velocity factor can also be measured from the self-
resonant frequency at 1/4WL. VF = 0.25(1/f)

> I suppose you also
> have something that will tell us how to find your coil's characteristic
> impedance; o.k., out with it.

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)

The characteristic impedance can also be measured at
1/2 the self-resonant frequency at 1/8WL. For a lossless
case, the impedance is j1.0, normalized to the
characteristic impedance so |Z0| = |XL|.
For a Q = 300 coil, that should have some ballpark accuracy.

We don't need extreme accuracy here. We just need enough to
indicate a trend that the velocity factor of a well-designed
coil doesn't increase by a factor of 5 when going from 16
MHz to 4 MHz.

In "Antennas for All Applications", Kraus gives us the phase
of the standing wave current on standing wave antennas like
a 1/2WL dipole and mobile antennas. 3rd edition, Figure 14-2.
It clearly shows that the phase of the standing wave is virtually
constant tip-to-tip for a 1/2WL dipole. It is constant whether
a coil is present or not. There is no reason to keep measuring
that phase shift over and over, ad infinitum. There is virtually
no phase shift unless the dipole is longer than 1/2WL and then
it abruptly shifts phase by 180 degrees.

I agree with Kraus and concede that the current phase shift in
the midst of standing waves is at or near zero. There is no
need to keep providing measurement results and references.
--
73, Cecil http://www.qsl.net/w5dxp

2714. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 21:58:47 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <r0HRf.560972$qk4.146201@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63175

Tom,

Whenever Cecil gets in a total lather I am reminded of John Belushi in Animal House. "Were you there when the Germans bombed Pearl Harbor?"

This entire saga has been greatly extended and quite thoroughly confused by imprecise and flat-out-incorrect terminology. It probably won't get better any time soon.

Currents, waves, and fields are used interchangeably as the mood strikes. Phase shift can refer to almost anything, it seems. Free-space optics are used as an analog to current in a wire. Descriptions that almost certainly have little transferability from one human to another abound, such as "superposed local RF phasors".

Oh well, it's entertaining, at least for a while.

73,
Gene
W4SZ

w8ji@akorn.net wrote:

> With all the respect I can muster, here we go again Cecil.
>
> Current is current. Voltage is voltage.
>
[snip]
>
> In every single device we would be able to build, we would never be
> able to sort reflected current from forward because current is current.
> There really isn't any such thing as current traveling two directions
> at one past one point in a system.
>
> You have taken this argument to an absolute dead end, because you
> insist current can flow two directions at the same time at one single
> point in a system.
>
> You are demanding a measurement method that uses a device that cannot
> be built to measure something that does not exist. That is either
> humorous, sad, or frustrating. It sure isn't science.
>
> 73 Tom
>

2715. Re: Powerline trap

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 22:08:53 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121efnr3vn09h64@corp.supernews.com>
Source record: 63026

Wes Stewart wrote:
>
> Hmmm. Interesting. I'm too busy to think much about this at the
> moment but Devoldere has something in his book (p. 9-27 in my old
> Third Edition) about decoupling a tower from ground using a "linear"
> parallel-tuned trap.
>
> Does this not work?

This sounds like the "resonance breaker" someone mentioned recently. It resembles a gamma match. You put a wire parallel to the tower for a few feet, then connect the top to the tower through a capacitor. The bottom of the wire is connected to the (grounded) bottom of the tower. This alters the effective height, and therefore the resonant frequency, of a tower. It's a technique used in the broadcast industry to reduce undesired coupling which distorts antenna patterns.

I don't think this method will do more or less than a trap. There's nothing which will stop current or energy at some point, as long as there's mutual coupling from the wire on one side to the wire on the other.

I recall an EMI control class I took long ago, where they told how a brute force power line filter was installed to reduce radiation from circuitry inside a device via the power line. Worked fine in the lab but failed in production. The filter was physically placed where there was room near the front of the unit, and they found that the production folks had neatly bundled the filter input and output wires for some distance, providing a good path around the filter. The same sort of thing happens on a wire with a trap, although the coupling is of course not as strong as between the bundled wires.

Roy Lewallen, W7EL

2716. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 22:11:49 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121efta7fb7jqcf@corp.supernews.com>
Source record: 63027

Harry Gross wrote:
> I guess I'll have to break down, buy a copy of EZ-NEC and play with it:-)

The free demo program is adequate for what you're doing.

> By the way, are you suggesting that 90 degree rotation is all I'd need,
> simply because the dipole radiation pattern is so wide, broadside to the
> radiator?

Yes.

If that turns out to be true, then the problem becomes vastly
> easier to deal with, and could even be done mechanically by simply
> switching around the feed line to one dipole (easier to do with ladder
> line - the preferred feed line to a dipole - than coax, of course)

Why is ladder line preferred over coax? I suggest reading
http://eznec.com/Amateur/Articles/Baluns.pdf. Take a good look at Figure 2.

> although that might not be the BEST way to do it.

Roy Lewallen, W7EL

2717. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 22:29:28 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ctHRf.612$4L1.319@newssvr11.news.prodigy.com>
Source record: 63028

w8ji@akorn.net wrote:
> I've solved the measurement problem. I measured current and voltage
> levels and phase of each.

There you go again, "I, I, I". This is not about you. This is
about valid measurements. I concede that when one measures
the current phase shift in a standing wave environment, that
the result will be zero or close to zero. But we are not
interested in measuring a constant phase whether the coil
is in the circuit or not. We are interested in measuring the
phase shift through the coil and it is NOT zero.

Reference: Kraus' "Antennas for All Applications", 3rd edition,
Figure 14-2. Kraus clearly shows if you measure the phase shift
between any two points on a 1/2WL dipole, that measured shift
will be close to zero degrees whether a coil is present or not.
There is no need to keep performing those same measurements.
I agree with Kraus.

We know a 1/2WL dipole is 180 degrees long. The fact that the
standing wave current doesn't change phase from end to end
doesn't mean the 1/2WL dipole is zero degrees long. The fact
that the standing wave current doesn't change phase on each
side of a coil doesn't mean the coil is zero degrees long.

> I've measured time delay of current appearing at the coil output
> compared to input.

There you go again, "I, I, I". It doesn't matter who does the
measurement or whether a coil is in the circuit or not. The
standing wave current's phase doesn't change in the antenna's
180 degrees of length. That has nothing to do with anybody's
measurements. That's just a fact of physics. One cannot
use standing wave current to measure the delay through
a coil OR A WIRE in a standing wave environment.

If one takes a known 30 degrees of a 1/2WL dipole and uses
standing wave current to measure the phase shift through
that 30 degrees of wire, the measurement yields zero
degrees. Does that mean the phase shift in 30 degrees
of wire in a 1/2WL dipole is zero? Of course not. One
simply cannot ascertain the phase shift in a piece of
wire (or coil) by measuring the phase of the standing
wave current.

> Current is current.

On the contrary, one can look at the formula for standing wave current and see that standing wave current is NOT like traveling wave current. Traveling wave current is of the form f(z+wt) or f(z-wt) depending upon the direction of travel. Standing wave current is of the form f(z) + f(wt) so they are quite different and therefore have *different* characteristics.

As you can see from the functions, magnitude and phase are interlocked for a traveling wave. Magnitude and phase are unlocked for a standing wave. With a phasor fixed at zero degrees, how does a standing wave phasor manage to flow?

As is my custom, I am going to trim the part of your posting with which I agree.

> In every single device we would be able to build, we would never be
> able to sort reflected current from forward because current is current.

On the contrary, we do it all the time for transmission lines with a known Z0. We separate forward power from reflected power. It is trivial to take forward power in a certain Z0 feedline and convert that value of power into forward current. It is trivial to take the reflected power in that same line and convert that power into a reflected current. Here are the formulas:

|Ifor| = SQRT(Pfor/Z0) |Iref| = SQRT(Pref/Z0)

In our directional couplers, we throw away the phase when we rectify it, but we don't have to throw away the phase. We can look ahead of the diodes with an o'scope probe and actually compare the phases of the two waves.

> You have taken this argument to an absolute dead end, because you
> insist current can flow two directions at the same time at one single
> point in a system.

There you go again, "you, you, you". Everyone has requested that we cease and desist from the personal attacks. "We" means "you and me".

But it is well accepted in the distributed network model that two currents can flow in opposite directions at the same time. There's probably no other way to get standing waves and a 75m mobile bugcatcher antenna system *IS* a standing-wave antenna.

> You are demanding a measurement method that uses a device that cannot
> be built to measure something that does not exist. That is either
> humorous, sad, or frustrating. It sure isn't science.

There you go again, "you, you, you". This is not about you or me or our feelings. We can certainly measure the two currents flowing in opposite directions in a transmission line. Not having a voltage reference common is why it's hard to do in an antenna but I suspect it could be done with E-field and H-field probes

and a little superpositioning.

We are sometimes a rational species. We can perform our experiments on a transmission line with known Z0 and if we are careful, project out results on a standing wave antenna with an unknown Z0. Actually, the Z0 for a 1/2WL dipole made from #14 wire at 30 ft. from the ground is pretty well known to be about 1200 ohms.
--
73, Cecil http://www.qsl.net/w5dxp

2718. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:03:49 UTC
From: richardharrison@webtv.net
Message-ID: <24188-44174BD5-266@storefull-3251.bay.webtv.net>
Source record: 63030

Tom, W8JI wrote:
"A traditional directional coupler works by comparing voltage across the line at any one point to current in the line at that same point."

Almost. It compares a voltage sample to a current sample, both of which have been converted into d-c voltages. These have been carefully crafted to be exactly equal d-c voltages regardless of the power level in the line.

I`m giving up on correcting line by line.

Important fact is that a reflection reverses the phase between the voltage and current produced by a wave.

So when the samples from the forward wave are siummed, their total is exactly 2x the value of either the voltage-derived sample or the current-derived sample.

When the samples from the reflected wave are summed, being equal but opposite in polarity, they add to ZERO. Calibration is so the total produces the correct value on the power scale for the wave in the forward direction.

To get the power in the reverse direction, the input and output are effectively exchanged so that the forward power indication cancels and the reverse power indication is produced by the sum of its voltage and current d-c sample outputs.

Best regards, Richard Harrison, KB5WZI

2719. Digikey phishing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:12:41 UTC
From: "James F. Mayer" <jfma@ix.netcom.com>
Message-ID: <J5IRf.11859$S25.7274@newsread1.news.atl.earthlink.net>
Source record: 63029
Cross-posted to: alt.politics.usa.constitution.gun-rights,rec.antiques.radio+phono,rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.amateur.homebrew,rec.radio.amateur.misc,rec.radio.cb,sci.electronics.cad,sci.electronics.components,sci.electronics.

Someone or a group of persons are phishing with the subject header "CC Pending Order Letter from Digi-Key for salesorder 16642643" I have received 2 (two) of them in the last two days and I have forwarded them to Digikey. They are investigating. If you receive any, please notify Digikey so thay can trsck down the culprits and prosecute them to the fullest extent of the law.

2720. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:24:41 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <ZgIRf.56665$Jd.5977@newssvr25.news.prodigy.net>
Source record: 63031

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> What's the formula, Cecil?
>
>
> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (32)
>
> The velocity factor can also be measured from the self-
> resonant frequency at 1/4WL. VF = 0.25(1/f)
>
>> I suppose you also
>> have something that will tell us how to find your coil's characteristic
>> impedance; o.k., out with it.
>
>
> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)
>
> The characteristic impedance can also be measured at
> 1/2 the self-resonant frequency at 1/8WL. For a lossless
> case, the impedance is j1.0, normalized to the
> characteristic impedance so |Z0| = |XL|.
> For a Q = 300 coil, that should have some ballpark accuracy.
>
> We don't need extreme accuracy here. We just need enough to
> indicate a trend that the velocity factor of a well-designed
> coil doesn't increase by a factor of 5 when going from 16
> MHz to 4 MHz.
>
> In "Antennas for All Applications", Kraus gives us the phase
> of the standing wave current on standing wave antennas like
> a 1/2WL dipole and mobile antennas. 3rd edition, Figure 14-2.
> It clearly shows that the phase of the standing wave is virtually
> constant tip-to-tip for a 1/2WL dipole. It is constant whether
> a coil is present or not. There is no reason to keep measuring
> that phase shift over and over, ad infinitum. There is virtually
> no phase shift unless the dipole is longer than 1/2WL and then
> it abruptly shifts phase by 180 degrees.
>
> I agree with Kraus and concede that the current phase shift in
> the midst of standing waves is at or near zero. There is no
> need to keep providing measurement results and references.

You load your antennas with a Tesla coil? Did you read the part
about a Tesla coil going to a lumped inductor when it was shortened?
73,
Tom Donaly, KA6RUH

2721. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:32:09 UTC
From: w8ji@akorn.net
Message-ID: <1142379129.545154.104140@j52g2000cwj.googlegroups.com>
Source record: 63032

Richard Harrison wrote:
> Tom, W8JI wrote:
> "A traditional directional coupler works by comparing voltage across the
> line at any one point to current in the line at that same point."
>
> Almost. It compares a voltage sample to a current sample, both of which
> have been converted into d-c voltages. These have been carefully crafted
> to be exactly equal d-c voltages regardless of the power level in the
> line.

That's absolutely incorrect Richard.

If you get out the schematic of ANY directional coupler, you will see the current sampling device is in series with a voltage sampling device.

The radio frequency voltage ratios of sampling system are combined BEFORE detection.

The dc voltage level does vary with both voltage and current (power), and that is why the meter on the front of your watt meter goes up and down with power levels.

Only a phase detector levels voltages.

73 Tom

2722. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:36:34 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <09ke125ae6sgljfk808u0vesdka361li2g@4ax.com>
Source record: 63033

On Tue, 14 Mar 2006 17:03:49 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Tom, W8JI wrote:
>"A traditional directional coupler works by comparing voltage across the
>line at any one point to current in the line at that same point."
>
>Almost. It compares a voltage sample to a current sample, both of which
>have been converted into d-c voltages. These have been carefully crafted
>to be exactly equal d-c voltages regardless of the power level in the
>line.

When you convert a sample of the RF voltage at a point to DC voltage you have a DC voltage proportional to the magnitude of the RF voltage at the point.

When you convert a sample of the RF current at the same point to DC voltage you have a DC voltage proportional to the magnitude of the RF current at the point.

You cannot use these two samples to determine generally the magnitude of the reflection coefficient (and hence VSWR), much less independent samples of the travelling waves.

No, neither a directional coupler nor a common reflectoter work as you describe Richard.

Owen
--

2723. Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:40:42 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1142379642.765519.168180@p10g2000cwp.googlegroups.com>
Source record: 63034

I'm trying to setup a homebrew WiFi (802.11b/g) antenna for my IBM Think Pad laptop. The coax run will be about 15" going to some home brew antennas. I don't know the name of the antenna but it can be seen at this url:

http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html

I plan on running coax (2 lines) from the 802.11 card (internal mini PCI)
to the rear top of the LCD display. I'll terminate with connectors and attach the antennas when the laptop is open. Great plan but what about coax losses? The output of the 802.11 card is 250mw.

Most WiFi antennas use RG174 coax - I've even seen mobile antennas for WiFi with 10' runs of the stuff. Correct me if I'm wrong but wouldn't
10' of rg174 at 5 ghz be so lossy that it would defeat the purpose of the
mag mount mobile antenna?

Like I said, I only need about 15" from the output of the 802.11 card to the antennas. What coax would be good? I'm worried about losses but I also need to route the coax through the laptop and up the back of the LCD display so size (dia) matters. I guess I'm stuck with RG174 but are there better choices? What would be the losses with 15" of it into a matched load at 5ghz?

Basically, given the above conditions and with the need for both small coax and teeny connectors, what would be your recommendations?

73's de Ken KG0WX

2724. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:47:15 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <r8mdnR8ymJQsyYrZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 63035

w8ji@akorn.net wrote:

> 2.) We have to use a "directional current coupler" to sort current
> flowing one way from current floing the other, because of standing wave
> current.

My parenthetical request for someone to volunteer the use or a pair of
directional coupler current probes was as serious as the mention of
a raster ammeter.

> This entire thing has become almost laughable.
(snip)

Then it worked.

2725. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:50:23 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <3FIRf.28313$M52.20709@edtnps89>
Source record: 63037

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:u0cje3-6h5.ln1@p400bob.personal.cox.net...
> On a learning curve here. I'll admit I am after a fast answer or two.
>
> Using 4nec2 to model what will likely be a 2m antenna used at the home
> QTH. Its an extended double zepp. ie two 5/8's in phase with a hairpin
> like centre section, the whole thing made of 1/2" copper and fed at 200
> ohms with a 4:1 balun or 100 ohm Q section. I have also included the mast
> but havent really adjusted for best gain. There will be a quad on the
> other side that isnt modeled yet.
>
> Looking good so far but;
>
> - Is the diameter of the source wire an issue?
>
> - How do I allow for the use of copper pipe 90 degree elbows used in
> construction. If I model them as (say) a extra single wire at 45 degrees
> to mimic the radious I run into segment len/diameter limits.
>
> Any thoughts or feedback welcome. Nec file attached inline. (Apologies for
> the line breaks) I have yet to go through convergence testing and playing
> with numbers of segments in the shorter sections.
>
> Cheers Bob W5/VK2YQA
>
> CE
> GW 1 13 0 0 15.19 0 0 16.38 0.012
> GW 2 3 0 0 16.38 0.28 0 16.38 0.012
> GW 3 3 0.28 0 16.38 0.41 0 16.38 0.012
> GW 4 1 0.41 0 16.38 0.41 0 16.45 0.012
> GW 5 3 0.41 0 16.45 0.28 0 16.45 0.012
> GW 6 3 0.28 0 16.45 0 0 16.45 0.012
> GW 7 13 0 0 16.45 0 0 17.64 0.012
> GW 8 1 0.28 0 16.45 0.28 0 16.38 0.012
> GW 9 81 0.501 0 0 0.501 0 17.7 0.025
> GE 1
> EK
> EX 0 8 1 0 1 0
> GN 2 0 0 0 14 8.e-3
> FR 0 1 0 0 146 0
> EN

Bob, while your model does not produce any errors with NEC 2, the
"Average Gain Test" (AGT) returns:

```
Freq.(MHz) Wavelength(m) Avg. Power Avg. Power (dB) Comments
--------------------------------------------------------------------------
146.00000 2.05340 0.78364 -1.05885
Questionable
```

All GW cards return a warning: " Seg.Len/Rad < 8. Also the pole segmentation is considered too large.

It appears that accurate modelling of such a structure in NEC 2 is not possible unless you reduce the size of your conductors.

73,

Frank

2726. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-14 23:54:52 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <r8mdnR4ymJTny4rZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 63036

Richard Harrison wrote:
> Tom, W8JI wrote:
> "A traditional directional coupler works by comparing voltage across the
> line at any one point to current in the line at that same point."
>
> Almost. It compares a voltage sample to a current sample, both of which
> have been converted into d-c voltages. These have been carefully crafted
> to be exactly equal d-c voltages regardless of the power level in the
> line.
>
> I`m giving up on correcting line by line.
>
> Important fact is that a reflection reverses the phase between the
> voltage and current produced by a wave.
>
> So when the samples from the forward wave are siummed, their total is
> exactly 2x the value of either the voltage-derived sample or the
> current-derived sample.
>
> When the samples from the reflected wave are summed, being equal but
> opposite in polarity, they add to ZERO. Calibration is so the total
> produces the correct value on the power scale for the wave in the
> forward direction.
>
> To get the power in the reverse direction, the input and output are
> effectively exchanged so that the forward power indication cancels and
> the reverse power indication is produced by the sum of its voltage and
> current d-c sample outputs.

Thank you for this concise summary.

2727. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 00:25:23 UTC
From: chuck <nospam@nospam.net>
Message-ID: <T9JRf.11903$S25.3722@newsread1.news.atl.earthlink.net>
Source record: 63038

Hello Tom,

I understand that on page 6, the reference qualifies the statement in
the abstract by saying that for heights " . . . less than 15 degrees . .
. one passes to the lumped element regime . . ."

I thought Cecil was drawing examples for heights greater than 15
degrees. Have I misunderstood?

73,

Chuck, NT3G

Tom Donaly wrote:
> Cecil Moore wrote:
>
>> Tom Donaly wrote:
>>
>>> What's the formula, Cecil?
>>
>>
>>
>> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (32)
>>
>> The velocity factor can also be measured from the self-
>> resonant frequency at 1/4WL. VF = 0.25(1/f)
>>
>>> I suppose you also
>>> have something that will tell us how to find your coil's characteristic
>>> impedance; o.k., out with it.
>>
>>
>>
>> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)
>>
>> The characteristic impedance can also be measured at
>> 1/2 the self-resonant frequency at 1/8WL. For a lossless
>> case, the impedance is j1.0, normalized to the
>> characteristic impedance so |Z0| = |XL|.
>> For a Q = 300 coil, that should have some ballpark accuracy.
>>
>> We don't need extreme accuracy here. We just need enough to
>> indicate a trend that the velocity factor of a well-designed
>> coil doesn't increase by a factor of 5 when going from 16
>> MHz to 4 MHz.
>>

>> In "Antennas for All Applications", Kraus gives us the phase
>> of the standing wave current on standing wave antennas like
>> a 1/2WL dipole and mobile antennas. 3rd edition, Figure 14-2.
>> It clearly shows that the phase of the standing wave is virtually
>> constant tip-to-tip for a 1/2WL dipole. It is constant whether
>> a coil is present or not. There is no reason to keep measuring
>> that phase shift over and over, ad infinitum. There is virtually
>> no phase shift unless the dipole is longer than 1/2WL and then
>> it abruptly shifts phase by 180 degrees.
>>
>> I agree with Kraus and concede that the current phase shift in
>> the midst of standing waves is at or near zero. There is no
>> need to keep providing measurement results and references.
>
>
> You load your antennas with a Tesla coil? Did you read the part
> about a Tesla coil going to a lumped inductor when it was shortened?
> 73,
> Tom Donaly, KA6RUH

2728. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 00:43:46 UTC
From: w8ji@akorn.net
Message-ID: <1142383426.398750.259860@v46g2000cwv.googlegroups.com>
Source record: 63039

John Popelish wrote:
> > To get the power in the reverse direction, the input and output are
> > effectively exchanged so that the forward power indication cancels and
> > the reverse power indication is produced by the sum of its voltage and
> > current d-c sample outputs.
>
> Thank you for this concise summary.

Except it is actually an incorrect concise summary.

The directional coupler adds RF voltage from a sampling across the line directly to a sampling of RF current past that point.

It is only after the voltages, one proportional to current and one proportional to voltage, are added that the resulting voltage is rectified and used to drive a meter.

The directional effect can be analyzed using wave theory or simple circuit theory. The results are the same.

73 Tom

2729. Balun Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 00:52:46 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <4417658a$0$3760$39cecf19@news.twtelecom.net>
Source record: 63040

If one has a sealed balun, such as you would pick up at your FLARPS or a fles market, and the label has disappeared from environmental exposure, is it possible to easily determine -

1) - if you are sure it's a 1:1 whether it's voltage or current type

2) - given it's totally unknown, anything about it.

Instruments available would be a standard multimeter and an MFJ 259 or something equivalent.

I think I know the answer to 1), but 2) has me stumped. Yes, dummy loads are a start, but is there an efficient way to get all unknowns absolutely resolved.

tom
K0TAR

2730. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:00:15 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142384415.616072.73540@j33g2000cwa.googlegroups.com>
Source record: 63041

Tom wrote, "The directional effect can be analyzed using wave theory or simple
circuit theory. The results are the same."

Of course, "the directional effect" depends completely on having the sampler calibrated to the impedance of the line into which it's inserted. Otherwise, it's just resolving "forward" and "reverse" _as_if_ the signal is in a line that has a characterisitc impedance equal to the sampler's calibration impedance.

To the extent the samples are accurate for instantaneous currents and voltages, the sampler does NOT depend on sinusoidal excitation. The result is accurate for the current and voltage that exist at each instant in time. Some directional couplers are very broadband; others are not. We made the ones in the 8753 that Tom uses to be accurate over a wide frequency range. And of course, if you don't just rectify the output, you can extract phase information from it as well as amplitude.

Cheers,
Tom

2731. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:17:23 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <zPCdnaX-H-5P9IrZnZ2dnUVZ_tKdnZ2d@adelphia.com>
Source record: 63042

w8ji@akorn.net wrote:
> John Popelish wrote:
>
>>>To get the power in the reverse direction, the input and output are
>>>effectively exchanged so that the forward power indication cancels and
>>>the reverse power indication is produced by the sum of its voltage and
>>>current d-c sample outputs.
>>
>>Thank you for this concise summary.
>
>
> Except it is actually an incorrect concise summary.
>
> The directional coupler adds RF voltage from a sampling across the line
> directly to a sampling of RF current past that point.
>
> It is only after the voltages, one proportional to current and one
> proportional to voltage, are added that the resulting voltage is
> rectified and used to drive a meter.
>
> The directional effect can be analyzed using wave theory or simple
> circuit theory. The results are the same.

I appreciate the correction. I am weak in the area of RF instrumentation, but am learning fast. It is an area I have somehow avoided for a long time, but am getting interested in it, lately.

I would very much like to see a more complete report on the measurements you have made, in relation to this thread. I am sure I would learn from seeing that. I tried to find an operating manual or application note on the network analyzer you used, but found little that was helpful to teach me how it works, and how one applies it. It seems to have 4 signal connectors (if I am interpreting what I have found, correctly) and I can interpret your web account to mean several possible things, so I am still under a bit of a cloud, here. Your tutelage is much appreciated.

2732. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:39:54 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KfKRf.43647$2O6.16987@newssvr12.news.prodigy.com>
Source record: 63044

Tom Donaly wrote:
> You load your antennas with a Tesla coil? Did you read the part
> about a Tesla coil going to a lumped inductor when it was shortened?

A minimum Tesla coil is 1/4WL. My 75m bugcatcher coil
mounted on my pickup as a base-loaded coil with no
whip is 1/4WL on 6.6 MHz. Going from 6.6 Mhz to 4 MHz
is only 40% shortening. I think the lumped inductor
crossover point is probably pretty far below 4 MHz.
--
73, Cecil http://www.qsl.net/w5dxp

2733. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:39:57 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <NfKRf.7774$%e1.6453@trnddc05>
Source record: 63043

"KG0WX" <kg0wx@yahoo.com> wrote in message
news:1142379642.765519.168180@p10g2000cwp.googlegroups.com...
> I'm trying to setup a homebrew WiFi (802.11b/g) antenna for my IBM
> Think Pad laptop. The coax run will be about 15" going to some home
> brew antennas. I don't know the name of the antenna but it can be seen
> at this url:
>
> http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>
> I plan on running coax (2 lines) from the 802.11 card (internal mini
> PCI)
> to the rear top of the LCD display. I'll terminate with connectors and
> attach the antennas when the laptop is open. Great plan but what about
> coax losses? The output of the 802.11 card is 250mw.
>
> Most WiFi antennas use RG174 coax - I've even seen mobile antennas
> for WiFi with 10' runs of the stuff. Correct me if I'm wrong but
> wouldn't
> 10' of rg174 at 5 ghz be so lossy that it would defeat the purpose of
> the
> mag mount mobile antenna?
>
> Like I said, I only need about 15" from the output of the 802.11 card
> to the antennas. What coax would be good? I'm worried about losses
> but I also need to route the coax through the laptop and up the back
> of the LCD display so size (dia) matters. I guess I'm stuck with RG174
> but are there better choices? What would be the losses with 15" of it
> into a matched load at 5ghz?
>
> Basically, given the above conditions and with the need for both small
> coax and teeny connectors, what would be your recommendations?
>
> 73's de Ken KG0WX

Hi Ken

Could you use a USB connected wireless adapter?? You can dismantel some
USB wireless adapters so their antennas are available to you for attaching a
coax and even a SMA if you have the ability to work with that small stuff.

Jerry

2734. Re: Balun Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:40:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121es3p5el3u5fb@corp.supernews.com>
Source record: 63045

Tom Ring wrote:
> If one has a sealed balun, such as you would pick up at your FLARPS or a
> fles market, and the label has disappeared from environmental exposure,
> is it possible to easily determine -
>
> 1) - if you are sure it's a 1:1 whether it's voltage or current type

Measure between the input terminals with an ohmmeter. A voltage balun will show a DC short, a current balun an open.

> 2) - given it's totally unknown, anything about it.

Connect the input terminals together and the output terminals together. Connect it to your antenna analyzer as a plain series load -- that is, connect the balun input terminals to the analyzer center conductor and the balun output terminals to the analyzer connector shell (or reverse the two -- it doesn't matter). Measure the impedance at frequencies of interest. You generally need a minimum of around 500 - 1000 ohms for an effective balun. The angle of the impedance doesn't matter unless you're running a lot of power, in which case a low angle (that is, a primarily resistive impedance) might result in objectionable balun heating.

You can also connect resistors of various values across the balun output and measure the input Z with your analyzer. With a 50 ohm load, you should see close to 50 ohms in over a wide frequency range. As the load gets farther from 50 ohms, you'll see more variation between the input and output Z and it'll change more rapidly with frequency. This can be corrected if necessary with a matching arrangement.

> Instruments available would be a standard multimeter and an MFJ 259 or
> something equivalent.

> I think I know the answer to 1), but 2) has me stumped. Yes, dummy
> loads are a start, but is there an efficient way to get all unknowns
> absolutely resolved.

Roy Lewallen, W7EL

2735. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:52:11 UTC
From: w8ji@akorn.net
Message-ID: <1142387531.912139.87390@i39g2000cwa.googlegroups.com>
Source record: 63046

John Popelish wrote:

> I appreciate the correction. I am weak in the area of RF
> instrumentation, but am learning fast. It is an area I have somehow
> avoided for a long time, but am getting interested in it, lately.

Good. It is an interesting area of electronics. If you are comfortable
with RF circuitry, RF instrumentation is only a small additional step.

> I would very much like to see a more complete report on the
> measurements you have made, in relation to this thread.

The problem is always time. I'm at the busiest time of the year for me,
so everything that isn't a fore is sitting. I really swore I wouldn't
get involved in an ungoing three year debate, but here I am anyway. I
guess I needed a break from a constant string of projects all with
tight deadlines.

>I am sure I
> would learn from seeing that. I tried to find an operating manual or
> application note on the network analyzer you used, but found little
> that was helpful to teach me how it works, and how one applies it. It
> seems to have 4 signal connectors (if I am interpreting what I have
> found, correctly) and I can interpret your web account to mean several
> possible things, so I am still under a bit of a cloud, here. Your
> tutelage is much appreciated.

This is the closest manual I could find.

http://www.home.agilent.com/cgi-bin/pub/agilent/editorial/cp_MiscEditorial.jsp?NAV_ID=-536
895237.536881282.02&LANGUAGE_CODE=eng&CONTENT_KEY=1000000108%3aepsg%3aman&ID=1000000108%3a
epsg%3aman&COUNTRY_CODE=US

For this:

http://www.home.agilent.com/USeng/nav/-536895237.536881282/pd.html

Agilent seems to obsolete things after seven years.

I have some useful equipment. Including an Impedance test set I paid
about 20K for in the 90's. It directly measures almost anything you
would every want to know.

The nice thing about having test gear is being able to build almost
anything. I have it because of work. You can do a lot with almost
nothing except a vector voltmeter and a test fixture, but the automated
measurements save me time.

73 Tom

2736. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:56:30 UTC
From: richardharrison@webtv.net
Message-ID: <9128-4417744E-274@storefull-3253.bay.webtv.net>
Source record: 63048

Tom, W9JI wrote:
"It is only after the voltages, one proportional to current and one proportional to voltage, are added that the voltage is rectified and used to drive the meter."

Obviously a power determination must use voltage and current samples taken at the same place at the same time. We can`t use today`s voltage and yesterday`s current nor can we use the voltage over here and the current over there.

Everything happens simultaneously and at the same sampling point.

A single loop terminated in a diode is coupled to the center conductor of the coax. Its magnetic coupling produces the current sample. Its capacitive coupling produces the voltage sample. These are tweaked for identical deflection of the power meter.

Best regards, Richard Harrison, KB5WZI

2737. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 01:58:00 UTC
From: w8ji@akorn.net
Message-ID: <1142387880.537934.100710@p10g2000cwp.googlegroups.com>
Source record: 63047

Cecil Moore wrote:

> is only 40% shortening. I think the lumped inductor
> crossover point is probably pretty far below 4 MHz.
> 73, Cecil http://www.qsl.net/w5dxp

There isn't any "crossover point". That point has been made several
times by different people.

There is a gradual transition over a very wide frequency range, and a
rapidly increasing change as self-resonace is approached.

2738. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:08:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <sGKRf.43655$2O6.42623@newssvr12.news.prodigy.com>
Source record: 63050

chuck wrote:
> I understand that on page 6, the reference qualifies the statement in
> the abstract by saying that for heights " . . . less than 15 degrees . .
> . one passes to the lumped element regime . . ."
>
> I thought Cecil was drawing examples for heights greater than 15
> degrees. Have I misunderstood?

You understand, Chuck, for example, my 75m bugcatcher coil, base-
mounted on my GMC pickup with no whip is 1/4WL self-resonant at
6.6 MHz, i.e. it is 90 degrees on 6.6 Mhz. By ratio and proportion,
the height on 4 MHz is 90(4/6.6) = ~54.5 degrees, 3.6 times the
transition height for passing to the lumped element regime. One
would have to divide the self-resonant frequency by 6 to get down
to the 15 degree maximum for the lumped element regime so 1.1 MHz
would be the highest frequency for which the lumped element regime
could be considered valid.

As the paper says: "Of course, the uniform current assumption
has no validity for coils operating anywhere near self-resonance."

Even the 100 uH test coil, 90 degrees self-resonant at 16 MHz,
when used on 4 MHz is 90(4/16) = ~22.5 degrees, still above
the 15 degree limit. One would have to go down to 2.7 MHz
for the lumped element regime to be valid for that 100 uH
coil and that is for an excellent coil with a Q of around 300.
--
73, Cecil http://www.qsl.net/w5dxp

2739. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:10:44 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <99udnWhNLdvO64rZnZ2dnUVZ_s-dnZ2d@adelphia.com>
Source record: 63049

w8ji@akorn.net wrote:
> John Popelish wrote:
(snip)

>>I would very much like to see a more complete report on the
>>measurements you have made, in relation to this thread.
>
> The problem is always time. I'm at the busiest time of the year for me,
> so everything that isn't a fore is sitting. I really swore I wouldn't
> get involved in an ungoing three year debate, but here I am anyway. I
> guess I needed a break from a constant string of projects all with
> tight deadlines.

I can appreciate that. I have recently gotten sucked into a wide
ranging study of ferrite rod antenna basics, and am having trouble
finding time to go to work or to bed. Almost every preconceived
notion I had about them I have been able to disprove by direct
measurement. Very educational.

>
>>I am sure I
>>would learn from seeing that. I tried to find an operating manual or
>>application note on the network analyzer you used, but found little
>>that was helpful to teach me how it works, and how one applies it.
(snip)

> This is the closest manual I could find.
>
> http://www.home.agilent.com/cgi-bin/pub/agilent/editorial/cp_MiscEditorial.jsp?NAV_ID=-536895237.536881282.02&LANGUAGE_CODE=eng&CONTENT_KEY=1000000108%3aepsg%3aman&ID=1000000108%3aepsg%3aman&COUNTRY_CODE=US
>
> For this:
>
> http://www.home.agilent.com/USeng/nav/-536895237.536881282/pd.html

I'll take a good look at these.

> Agilent seems to obsolete things after seven years.
>
> I have some useful equipment. Including an Impedance test set I paid
> about 20K for in the 90's. It directly measures almost anything you
> would every want to know.
(snip)

So far, I am working with an RF volt meter, a signal generator or two, and an antique Boonton 160A Q meter. But I am finding lots of ways to put them to use. I would love to have a vector volt meter or vector impedance meter. A network analyzer is way beyond my budget.

2740. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:13:30 UTC
From: w8ji@akorn.net
Message-ID: <1142388810.162667.101490@z34g2000cwc.googlegroups.com>
Source record: 63051

Bill Turner wrote:

> Trying to bridge the gap between engineering and English, I would
> suggest this analogy:
>
> A mirror reflects light energy fed to it, while a light bulb takes
> electricity and turns it into light.

A reflector does not "reflect". It simply re-radiates with the correct phase and level to null energy from the other element(s) in the unwanted direction. This is why spacing and length is critical.

Try using your two element Yagi with a reflector lower in frequency. The reflector becomes a director.

Now think of a director. The director removes signal from the rear about the same as a "reflector" does. Change the length and it can become a reflector.

Now think of a mirror or a screen that is not resonant.

A mirror or screen works on a different principle. It reflects. Once it is a certain physical size, resonance does not matter. It can be 100 wavelengths across or 1 wavelength, and it still reflects. It will reflect infared or ultraviolate, and a 100 foot screen will reflect 60 meters to 10 cm all the same if the mesh is small enough.

Thinking a reflector "reflects" and a director "directs" will doom you to failure if you are trying to understand how a Yagi works.

73 Tom

2741. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:26:55 UTC
From: Chuck Olson <chuckolson01@REMOVETHIScomcast.net>
Message-ID: <XI6dnTsPL4Rm54rZRVn-gQ@comcast.com>
Source record: 63052

"Jerry Martes" <j.jmartes@verizon.net> wrote in message
news:NfKRf.7774$%e1.6453@trnddc05...
>
> "KG0WX" <kg0wx@yahoo.com> wrote in message
> news:1142379642.765519.168180@p10g2000cwp.googlegroups.com...
> > I'm trying to setup a homebrew WiFi (802.11b/g) antenna for my IBM
> > Think Pad laptop. The coax run will be about 15" going to some home
> > brew antennas. I don't know the name of the antenna but it can be seen
> > at this url:
> >
> > http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
> >
> > I plan on running coax (2 lines) from the 802.11 card (internal mini
> > PCI)
> > to the rear top of the LCD display. I'll terminate with connectors and
> > attach the antennas when the laptop is open. Great plan but what about
> > coax losses? The output of the 802.11 card is 250mw.
> >
> > Most WiFi antennas use RG174 coax - I've even seen mobile antennas
> > for WiFi with 10' runs of the stuff. Correct me if I'm wrong but
> > wouldn't
> > 10' of rg174 at 5 ghz be so lossy that it would defeat the purpose of
> > the
> > mag mount mobile antenna?
> >
> > Like I said, I only need about 15" from the output of the 802.11 card
> > to the antennas. What coax would be good? I'm worried about losses
> > but I also need to route the coax through the laptop and up the back
> > of the LCD display so size (dia) matters. I guess I'm stuck with RG174
> > but are there better choices? What would be the losses with 15" of it
> > into a matched load at 5ghz?
> >
> > Basically, given the above conditions and with the need for both small
> > coax and teeny connectors, what would be your recommendations?
> >
> > 73's de Ken KG0WX
>
> Hi Ken
>
> Could you use a USB connected wireless adapter?? You can dismantel some
> USB wireless adapters so their antennas are available to you for attaching
a
> coax and even a SMA if you have the ability to work with that small stuff.
>

> Jerry
>
>
Hi, Jerry and Ken

Pardon me for getting into this, but we would all like to know which USB adapters (and cardbus adapters currently manufactured) can be taken apart and fitted with an antenna connector. There are a number of PC card adapters that have appeared in websites showing these modifications but the units are mostly no longer manufactured. With metropolitan Wi-Fi coming in to various municipalities lately, it is becoming more desirable to put up an antenna to guarantee 100% connection when the AP is half a block away or behind a big house or dense foliage.

Thanks for your help.

Chuck

2742. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:37:08 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <44177e00$0$3754$39cecf19@news.twtelecom.net>
Source record: 63053

w8ji@akorn.net wrote:

> Thinking a reflector "reflects" and a director "directs" will doom you
> to failure if you are trying to understand how a Yagi works.
>
> 73 Tom
>

Thanks for the nice synopsis.

I would add that, because of how the physics works, the pattern that
evolves doesn't happen during the first cycle, or the first few. It
takes a while, and the more elements involved, the longer it takes.

There were some nice online "movies" (simulations) of an antenna
"building" its near and far field patterns a year or so ago. I will
have to do some googling to find them again, they were quite interesting.

tom
K0TAR

2743. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 02:47:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <gfLRf.56698$Jd.32730@newssvr25.news.prodigy.net>
Source record: 63054

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>is only 40% shortening. I think the lumped inductor
>>crossover point is probably pretty far below 4 MHz.
>
> There isn't any "crossover point". That point has been made several
> times by different people.

One of those people supporting a "crossover point" is Dr.
Corum in his IEEE peer reviewed paper at:

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf (page 6)

Dr. Corum is pretty clear about 15 degrees, i.e. 4% of a
wavelength, being the "crossover point". He considers 15
degrees to 90 degrees to require a distributed network
analysis while below 15 degrees, "one passes to the lumped-
element regime ..."

The "crossover point" would be the same rule as for a
transmission line. How long does a transmission line with
reflections have to be before it is no longer valid to
consider it a lumped piece of wire. 15 degrees is 4% of
a wavelength and sounds reasonable. However, under
the right conditions, one could arrange a current node
at the halfway point of that 15 degrees of feedline thus
causing current to flow into both ends of the feeline
at the same time. 1/2 cycle later, current would be
flowing out of both ends. How would a lumped-circuit
model handle those conditions?

The "crossover point" is obviously arbitrary but if one
locates it very far above 15 degrees, according to Dr.
Corum, one risks invalid analysis results such as have
been reported here.
--
73, Cecil http://www.qsl.net/w5dxp

2744. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 03:17:02 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <OGLRf.2957$tW2.1346@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63055

Cecil,

(No smiley faces this time. No trolls or tricks either.)

The assertion that there is some important difference between a standing wave and its component traveling waves has been made on a number of occasions in this thread. Indeed, that concept seems pretty central to the entire issue.

It may be worth examining the importance of this distinction further.

Basic assumptions:

* System is linear, with no diodes, saturating cores, etc.

* System is steady-state, with no startup transients.

* System is lossless, including a lack of radiation

* Superposition applies, i.e., scaling works and we can add subcomponent functions without error. The whole is precisely equal to the sum of the parts, no more and no less.

If any of these assumptions are not operative, then what follows may not be correct.

As you have stated, including references from Hecht, it is customary to mathematically show traveling waves in the form: cos (kz +/- wt)
Through straightforward addition and simple trigonometry is is seen that the standing wave corresponding to the sum of equal magnitude forward and reverse traveling waves has the form: cos (kz) * cos (wt)

The key question then becomes, what information has been lost in adding the traveling waves to form a standing wave? All of the parameters and variables are still in the standing wave equation, namely, k, z, w, t. The numerical values and definitions for these terms have not changed. One can add constant phase offsets in the traveling wave equations, but those don't really add any new information, and in any case they are not lost in converting to the standing wave format.

Are there some hidden variables that have not been considered? If so, what are they, and where do they show up in the original traveling wave equations? If not, why does the analysis and measurement of the traveling wave components give one iota more information than the analysis and measurement of the standing wave?

There is little doubt that real world conditions will violate some of the assumptions, but that does not seem to be the issue in the debate at

this time.

Again, what extra information would be gained if somehow the traveling
wave components could be measured?

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:

[snip]

>
>> Current is current.
>
>
> On the contrary, one can look at the formula for standing wave
> current and see that standing wave current is NOT like traveling
> wave current. Traveling wave current is of the form f(z+wt) or
> f(z-wt) depending upon the direction of travel. Standing wave
> current is of the form f(z) + f(wt) so they are quite different
> and therefore have *different* characteristics.
>
> As you can see from the functions, magnitude and phase are
> interlocked for a traveling wave. Magnitude and phase are
> unlocked for a standing wave. With a phasor fixed at zero
> degrees, how does a standing wave phasor manage to flow?

2745. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 03:45:11 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1142394311.679500.186730@i40g2000cwc.googlegroups.com>
Source record: 63056

Well, I'm not just building *any* WiFi setup - I researched a bit and found
on eBay what is generally agreed on to be one of the top 5 internal 802.11
cards. With up to 250mw output and external antenna, I plan on diving into
a new hobby - wardriving.

I could just buy a USB WiFi adapter and crack open the case and hack it
with an external antenna but from what I've seen, both the low output and
poor rx sensitivity seem to be quite common with these devices and that
is not what I want.

I did remember a bookmarked site which calculated the info I needed. Turns
out that my coax in question will have about 1.7 db loss at 5ghz. Not
too bad.

Still, if anyone knows of a coax that is better than RG174 while being about
the same size, please chime in with your comments!

Ken KG0WX

2746. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:11:19 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <HtMRf.17619$wH5.4491@trnddc02>
Source record: 63057

"Chuck Olson" <chuckolson01@REMOVETHIScomcast.net> wrote in message
news:XI6dnTsPL4Rm54rZRVn-gQ@comcast.com...
>
> "Jerry Martes" <j.jmartes@verizon.net> wrote in message
> news:NfKRf.7774$%e1.6453@trnddc05...
>>
>> "KG0WX" <kg0wx@yahoo.com> wrote in message
>> news:1142379642.765519.168180@p10g2000cwp.googlegroups.com...
>> > I'm trying to setup a homebrew WiFi (802.11b/g) antenna for my IBM
>> > Think Pad laptop. The coax run will be about 15" going to some home
>> > brew antennas. I don't know the name of the antenna but it can be seen
>> > at this url:
>> >
>> > http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>> >
>> > I plan on running coax (2 lines) from the 802.11 card (internal mini
>> > PCI)
>> > to the rear top of the LCD display. I'll terminate with connectors and
>> > attach the antennas when the laptop is open. Great plan but what about
>> > coax losses? The output of the 802.11 card is 250mw.
>> >
>> > Most WiFi antennas use RG174 coax - I've even seen mobile antennas
>> > for WiFi with 10' runs of the stuff. Correct me if I'm wrong but
>> > wouldn't
>> > 10' of rg174 at 5 ghz be so lossy that it would defeat the purpose of
>> > the
>> > mag mount mobile antenna?
>> >
>> > Like I said, I only need about 15" from the output of the 802.11 card
>> > to the antennas. What coax would be good? I'm worried about losses
>> > but I also need to route the coax through the laptop and up the back
>> > of the LCD display so size (dia) matters. I guess I'm stuck with RG174
>> > but are there better choices? What would be the losses with 15" of it
>> > into a matched load at 5ghz?
>> >
>> > Basically, given the above conditions and with the need for both small
>> > coax and teeny connectors, what would be your recommendations?
>> >
>> > 73's de Ken KG0WX
>>
>> Hi Ken
>>
>> Could you use a USB connected wireless adapter?? You can dismantel
>> some

>> USB wireless adapters so their antennas are available to you for
>> attaching
> a
>> coax and even a SMA if you have the ability to work with that small
>> stuff.
>>
>> Jerry
>>
>>
> Hi, Jerry and Ken
>
> Pardon me for getting into this, but we would all like to know which USB
> adapters (and cardbus adapters currently manufactured) can be taken apart
> and fitted with an antenna connector. There are a number of PC card
> adapters
> that have appeared in websites showing these modifications but the units
> are
> mostly no longer manufactured. With metropolitan Wi-Fi coming in to
> various
> municipalities lately, it is becoming more desirable to put up an antenna
> to
> guarantee 100% connection when the AP is half a block away or behind a big
> house or dense foliage.
>
> Thanks for your help.
>
> Chuck

Hi Chuck

Although I dont have a part number for a USB wireless adapter, I can get the number from my buddy's adapter. He replaced the built in antenna the USB wireless adapter with a short coax to his Wireless antenna. I assummed the adapters are available at places like Fry's.
I am using a different approach here at home. I put a Bridge behind small satellite TV dish and suffered the loss associated with foot and a half of coax loss to the illuminator. That allows me to run CAT 5 to the computer.

Jerry

>

2747. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:24:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <VFMRf.38736$_S7.18513@newssvr14.news.prodigy.com>
Source record: 63058

Gene Fuller wrote:
> As you have stated, including references from Hecht, it is customary to
> mathematically show traveling waves in the form: cos (kz +/- wt)
> Through straightforward addition and simple trigonometry is is seen that
> the standing wave corresponding to the sum of equal magnitude forward
> and reverse traveling waves has the form: cos (kz) * cos (wt)

I see I made a typo and typed a '+' sign in my previous equation.
Of course, it should have been a '*' sign for multiply.

> Are there some hidden variables that have not been considered?

Not a hidden variable, but there seems to be a hidden
mathematical concept, at least hidden from some individuals.

In case some might not know, 'z' is the position up and down
the wire, omega (w) is our old friend 2*pi*f, and 't' is, of
course, time.

In the traveling wave equation, cos(kz +/- wt), the position on
the wire and omega*time are added or subtracted *before* the cosine
function is taken. That means that the position on the wire and the
phase velocity are inter-related. One cannot have one without the
other. And that is indeed a characteristic of a traveling
wave. Physical position, frequency, and time all go into
making a traveling wave. It is modeled as a rotating phasor.

However, in the equation, cos(kz) * cos(wt), the physical position,
'z' is disconnected from the phase velocity, 'wt'. The standing wave
is no longer moving in the 'z' dimension. If you pick a 'z' and hold
it constant, i.e. choose a single point on the wire, the standing
wave becomes simply some constant times cos(wt). Thus at any fixed
point on the line, the standing wave is not moving - it is just
oscillating at the 'wt' rate and a current probe will certainly pick
up the H-field signal. The phase of the standing wave current is
everywhere, up and down the 1/2WL thin-wire, equal to zero. The sum
of the forward phasor and reflected phasor doesn't rotate. Its phase
doesn't change with position. Only its magnitude changes with position
and if the forward wave magnitude equals the reflected wave magnitude,
it is not flowing in the real sense that current flows. It is a
standing wave and it is just standing there.

The main thing to realize is that the standing wave equation
divorces the position of the standing wave from its phase
velocity such that the phase velocity is not active in the
'z' dimension, i.e. up and down the wire. The standing wave

current "pseudo phasor" is not rotating. The standing wave
is not going anywhere. It is not flowing along a wire or
through a coil. Measuring its phase is meaningless because
the phase is already known to be constant and unchanging from
tip to tip in a 1/2WL dipole or across a loading coil in a
mobile antenna.

Thinking that standing wave current flows from the middle of a
dipole to the ends is just a misconception. The equation for
a standing wave indicates that it doesn't flow. What is flowing
are the forward and reflected waves.
--
73, Cecil http://www.qsl.net/w5dxp

2748. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:48:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <u0NRf.38749$_S7.31290@newssvr14.news.prodigy.com>
Source record: 63059

Gene Fuller wrote:
> Again, what extra information would be gained if somehow the traveling
> wave components could be measured?

Here's a pretty good animation of forward, reflected,
and standing waves.

http://users.pandora.be/educypedia/electronics/applets/ph14e/stwaverefl.htm
--
73, Cecil http://www.qsl.net/w5dxp

2749. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:52:54 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <G4NRf.56720$Jd.36690@newssvr25.news.prodigy.net>
Source record: 63060

That's probably what he has in mind: using longer coils to
get the correct phase shift. He'll have to use the formulas
in the reference to make coils that will test his ideas.
I don't understand why he uses a coil at all, in that case,
since he could just as easily use a length of coiled up
transmission line to accomplish the same thing. I think he's
been trying to prove that coils, as people currently use them, are
really transmission lines that automatically shift the current
phase the correct amount to cancel antenna reactance. If
he applies his reference formulae to one of Tom's coils and it
doesn't show the correct phase shift, though, his theory is in trouble.
73,
Tom Donaly KA6RUH

chuck wrote:
> Hello Tom,
>
> I understand that on page 6, the reference qualifies the statement in
> the abstract by saying that for heights " . . . less than 15 degrees . .
> . one passes to the lumped element regime . . ."
>
> I thought Cecil was drawing examples for heights greater than 15
> degrees. Have I misunderstood?
>
> 73,
>
> Chuck, NT3G
>
>
> Tom Donaly wrote:
>
>> Cecil Moore wrote:
>>
>>> Tom Donaly wrote:
>>>
>>>> What's the formula, Cecil?
>>>
>>>
>>>
>>>
>>> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (32)
>>>
>>> The velocity factor can also be measured from the self-
>>> resonant frequency at 1/4WL. VF = 0.25(1/f)

>>>
>>>> I suppose you also
>>>> have something that will tell us how to find your coil's characteristic
>>>> impedance; o.k., out with it.
>>>
>>>
>>>
>>>
>>> http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)
>>>
>>> The characteristic impedance can also be measured at
>>> 1/2 the self-resonant frequency at 1/8WL. For a lossless
>>> case, the impedance is j1.0, normalized to the
>>> characteristic impedance so |Z0| = |XL|.
>>> For a Q = 300 coil, that should have some ballpark accuracy.
>>>
>>> We don't need extreme accuracy here. We just need enough to
>>> indicate a trend that the velocity factor of a well-designed
>>> coil doesn't increase by a factor of 5 when going from 16
>>> MHz to 4 MHz.
>>>
>>> In "Antennas for All Applications", Kraus gives us the phase
>>> of the standing wave current on standing wave antennas like
>>> a 1/2WL dipole and mobile antennas. 3rd edition, Figure 14-2.
>>> It clearly shows that the phase of the standing wave is virtually
>>> constant tip-to-tip for a 1/2WL dipole. It is constant whether
>>> a coil is present or not. There is no reason to keep measuring
>>> that phase shift over and over, ad infinitum. There is virtually
>>> no phase shift unless the dipole is longer than 1/2WL and then
>>> it abruptly shifts phase by 180 degrees.
>>>
>>> I agree with Kraus and concede that the current phase shift in
>>> the midst of standing waves is at or near zero. There is no
>>> need to keep providing measurement results and references.
>>
>>
>>
>> You load your antennas with a Tesla coil? Did you read the part
>> about a Tesla coil going to a lumped inductor when it was shortened?
>> 73,
>> Tom Donaly, KA6RUH

2750. Re: Balun Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:57:17 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <X5NRf.6231$TB1.5602@bignews4.bellsouth.net>
Source record: 63061

"Tom Ring" <news0002@taring.org> wrote in message
news:4417658a$0$3760$39cecf19@news.twtelecom.net...
> If one has a sealed balun, such as you would pick up at your FLARPS or a
> fles market, and the label has disappeared from environmental exposure,
> is it possible to easily determine -
>
> 1) - if you are sure it's a 1:1 whether it's voltage or current type
>
> 2) - given it's totally unknown, anything about it.
>
> Instruments available would be a standard multimeter and an MFJ 259 or
> something equivalent.

assuming its a wound balun...
attach some alligator clips to a variable resistor, and set it to around 50
ohms or so - then attach it to one side of the balun. and attach coax from
the mfj259 to the other side.
turn on the mfj and adjust the resistor for low swr (you'll have to measure
it later)
turn it off and measure the resistance you had to adjust it to.
Dividing that value by 50 will probably be the balun's impedence ratio
(4-to-1 - or whatever)
Change freqs on the MFJ and go it over again till you determine the
bandwidth.
(If you adjusted the resistor to 200 ohms and it shows SWR of 1:1, then its
a 4 to 1 balun)
my 2¢
Hal
W4PMJ

2751. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 04:59:00 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142398740.037561.168130@i40g2000cwc.googlegroups.com>
Source record: 63062

Please allow me to describe the antenna I was talking about which is
"similar" to a dish for HF. It obviously is not a dish but it has the
appearance of a dish as it has no directors as it were
but multi reflectors.The reflectors tho straight are not in line but
form a parabolic shape behind a driven dipole. Using this as a
illustrative model it shows that
(a) multiple "reflectors" can be used to advantage and it some cases
can be shorter than the driven element thus illustrating that element
length does not determine reflector versus director.
And (b) it also illustrates how the primary radiated beam can be
lowered versus a yagi with the driver at the same height.
And (c) that a single reflector is not always the best choice
My intention was to describe an array that looked like a dish
physically but illustrated how multi reflectors can replace multi
directors to advantage. I apologise that I used the word "simulate"
when comparing it to a dish but as you can see I was describing what
had the "appearance" of a dish is actually an array which I used as a
illustrative model to describe or emphasise that element length,
position etc with the terms director and reflector
can mislead and it is always better to stay with the generated fields
aproach.
It was not my intention to bring true dishes into the post
Art
Art

2752. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:00:55 UTC
From: Dave Heil <k8mn@earthlink.net>
Message-ID: <bcNRf.1699$HW2.351@newsread3.news.pas.earthlink.net>
Source record: 63063

Dan Richardson <k6mhe<at>adelphia wrote:
> On Mon, 13 Mar 2006 23:14:29 -0800, Roy Lewallen <w7el@eznec.com>
> wrote:
>
>> The advice to avoid acetic-acid smelling RTV because of corrosion is
>> passed along from person to person like an urban legend, but like an
>> urban legend it's just about impossible to find anyone who's actually
>> seen any corrosion result from its use. (A number of queries I've made
>> over the years has produced just one, using a very early version of RTV.)
>
> [snip]
>> Roy Lewallen, W7EL
>
> HI Roy,
>
> I have been using a different product for over a decade that works
> great - liquid vinyl tape. It does a heck of a job for sealing
> water-tight connections and, like RTV, doesn'g get hard and crack.
> You can buy it a most hardware stores.
>
> Its easy to use and, like was suggest earlier in this thread, I first
> wrap the connection with regular vinyl tape (a single layer) before
> appling the liquid compond - its makes for much easier removal when
> needed.

I've pretty much switched completely to the Plasti-Dip stuff myself. It
is readily available in at least two colors--red and black--at Lowe's.

I used RTV, both the acetic acid and non-acetic acid varieties through
the years. After a couple of unpleasant corrosion experiences with the
acetic acid type, I began either wrapping connectors with vinyl
electrical tape or spraying with acrylic sealant and then applied the
RTV. Either way works well. I recall seeing cautions that one should
be wary of black RTV in that it could conduct. I don't know whether it
can break down but I've used the clear product.

Dave Heil K8MN

2753. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:03:42 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <OeNRf.56724$Jd.51646@newssvr25.news.prodigy.net>
Source record: 63064

Cecil Moore wrote:

> Tom Donaly wrote:
>
>> You load your antennas with a Tesla coil? Did you read the part
>> about a Tesla coil going to a lumped inductor when it was shortened?
>
>
> A minimum Tesla coil is 1/4WL. My 75m bugcatcher coil
> mounted on my pickup as a base-loaded coil with no
> whip is 1/4WL on 6.6 MHz. Going from 6.6 Mhz to 4 MHz
> is only 40% shortening. I think the lumped inductor
> crossover point is probably pretty far below 4 MHz.

Why don't you crunch the numbers using your reference and find out for sure? (If your reference is correct, that is. Some of the papers by academics on the web don't always give information that corresponds to reality.) You should be able to analyze your bugcatcher easily and report what you find. It sure beats sitting around drinking Ripple and feeling persecuted.
73,
Tom Donaly, KA6RUH

2754. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:04:34 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CfNRf.38753$_S7.24514@newssvr14.news.prodigy.com>
Source record: 63065

Tom Donaly wrote:
> If
> he applies his reference formulae to one of Tom's coils and it
> doesn't show the correct phase shift, though, his theory is in trouble.

His reference formulae are for traveling waves, not standing waves.
We already know that the phase of the standing wave current on a
1/2WL thin-wire dipole varies not one degree over that entire
180 degrees. Yet we know the forward wave undergoes a 90 degree
phase shift from feedpoint to tip and the reflected wave undergoes
a 90 degree phase on the trip back to the feedpoint. Standing wave
phase is virtually unchanging and is therefore useless for trying
to determine the electrical length of a wire or a coil.
--
73, Cecil http://www.qsl.net/w5dxp

2755. Re: Military ships fan antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:10:38 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <YiNRf.1128$123.918@fed1read09>
Source record: 63066

"J. B. Wood" <wood@itd.nrl.navy.mil> wrote in message
news:wood-0903060744300001@jbw-mac.itd.nrl.navy.mil...
> In article <l7cu02pp5op1ca8r0ftmrjtoge9tknucrn@4ax.com>, Richard Clark
> <kb7qhc@comcast.net> wrote:
>
> > On Wed, 08 Mar 2006 19:14:02 GMT, "NA" <n6pjqnot@nospamarrl.net>
> > wrote:
> >
> > >Can anyone tell me about "fan antennas" like those used on the large
navy
> > >ships.
> >
> > Hi Jim,
> >
> > It is an array of co-planar, parallel monopoles driven at the same,
> > common point. The size of each in the array is different spanning
> > from short to long such that at least one is resonant within a wide
> > band of frequencies.
> >
> <snip>
>
> Hello, and the only fan antenna that I have any experience with is the
> venerable 2-6 MHz twin fan transmitting antenna used on USN combat ships.
> This antenna consists of two sets (port, starbaord) of three sloping wires
> strung from a yardarm on the stack to the feedpoint on the deck. A VSWR
> of 3 or less is typically achieved using a fixed passive LC network. By
> design, most of the radiation actually comes from RF currents induced on
> the stack by the fan wires. Sincerely,
>
> John Wood

Supplementing, if I may, many fan-wire antennas are fed from the mast. (I've
climbed most of the ships in the Pacific Fleet at one time or another.)
Coax into the matching network box and port/starboard feedwires out.

The traditional design used the fan from 2-6, another antenna, maybe a cage
for 4-12 and a third, maybe a discone or trussed whip, from 10-30. These
are fed by four- or eight-channel multicouplers in Radio.

A newer design, called HFRG, for HF Radio Group, uses a 2-9 fan and maybe
twin whips from 8- 30. HFRG tolerates a 4:1 SWR ... I don't think you can
get a match of 3:1 over a wide range like 2-9 or 8-30. (In a lab, maybe.)
I Googled for AN/URC-131 and got:
http://www.rfcomm.harris.com/products/integrated-communications/anurc-131v.p
df It's mostly a Harris puff piece, but there's a little techie stuff.

I have to say "maybe" a lot because of differences between classes and even between different levels of modernization within a single ship class.

John
KD6VKW
US Navy since Jan, 1962, in many capacities.

2756. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:19:31 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142399971.920517.32420@i39g2000cwa.googlegroups.com>
Source record: 63067

John P. wrote, "A network analyzer is way beyond my budget."

Though I'd love for you to buy a nice new Agilent Vector Network Analyzer, I have to say that for things up through low VHF at least, the very economical project at http://users.adelphia.net/~n2pk/index.html is well worth looking at. The performance, when properly calibrated, needs no apologies, for sure. Paul is one of the Good Guys in ham radio, and not just for making this project available.

One of Tom's links probably won't work for you, but I'd highly recommend some of the ap notes you can find after a somewhat diligent search. I'm sorry to say that the search engine on the Agilent web site is a poor relative of Google, but you should be able to find these two ap notes there:

Agilent AN 1287-1: Understanding the Fundamental Principles of Vector Network Analysis

Agilent 1291-1B: 10 Hints for Making Better Network Analysis Measurements.

They are in PDF files, and I just saved a copy of each...just in case you can't find them.

A Google search on phrases like "network analysis application note" and "VNA application note" should yield some interesting things. Here's one thing I found, which has links to others: http://na.tm.agilent.com/vnahelp/appnotes.html

Finally, there is an old HP ap note on S-parameters that you should try to find. It _may_ be on the Agilent web site, but if not, a Google search will probably turn it up. Though a Vector Network Analyzer does not necessarily have to do S-parameter measurements, the 8753 is set up to do them as its fundamental measurement, and they are generally useful in making higher frequency measurements, since the standard methodology in the industry is to use S parameters to characterize both passive and active devices. If you look at network analyzers on eBay, you may see ones offered without the S-parameter test set, and you can find the S-parameter test sets offered separately; that's all fine so long as you understand what you are looking at.

Cheers,
Tom

2757. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:54:32 UTC
From: Bob <warthog9@pacbell.net>
Message-ID: <s_NRf.54029$H71.36157@newssvr13.news.prodigy.com>
Source record: 63069

Did you know the USSS investigates many types of computer fraud and
hacking? Do you think iti¿½s wise to state your intent to maliciously
invade other peoples computer systems and mention a traceable Ebay
purchase of the goods to do so?
USB type adaptors generally do not work with the popular freeware that
you wanna be hackers use to commit your heinous crimes.
Belden RG-174 has about .6dB loss/ft @ 5.6GHz. Your 15ft chunk would
have about 9dB loss, not too impressive.
Bob

KG0WX wrote:
> Well, I'm not just building *any* WiFi setup - I researched a bit and
> found
> on eBay what is generally agreed on to be one of the top 5 internal
> 802.11
> cards. With up to 250mw output and external antenna, I plan on diving
> into
> a new hobby - wardriving.
>
> I could just buy a USB WiFi adapter and crack open the case and hack it
> with an external antenna but from what I've seen, both the low output
> and
> poor rx sensitivity seem to be quite common with these devices and that
> is not what I want.
>
> I did remember a bookmarked site which calculated the info I needed.
> Turns
> out that my coax in question will have about 1.7 db loss at 5ghz. Not
> too bad.
>
> Still, if anyone knows of a coax that is better than RG174 while being
> about
> the same size, please chime in with your comments!
>
> Ken KG0WX
>

2758. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 05:56:39 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <C4KdnQkmmJHYNorZnZ2dnUVZ_tWdnZ2d@adelphia.com>
Source record: 63068

K7ITM wrote:
> John P. wrote, "A network analyzer is way beyond my budget."
>
> Though I'd love for you to buy a nice new Agilent Vector Network
> Analyzer, I have to say that for things up through low VHF at least,
> the very economical project at
> http://users.adelphia.net/~n2pk/index.html is well worth looking at.
> The performance, when properly calibrated, needs no apologies, for
> sure. Paul is one of the Good Guys in ham radio, and not just for
> making this project available.
>
> One of Tom's links probably won't work for you, but I'd highly
> recommend some of the ap notes you can find after a somewhat diligent
> search. I'm sorry to say that the search engine on the Agilent web
> site is a poor relative of Google, but you should be able to find these
> two ap notes there:
>
> Agilent AN 1287-1: Understanding the Fundamental Principles of Vector
> Network Analysis
>
> Agilent 1291-1B: 10 Hints for Making Better Network Analysis
> Measurements.
>
> They are in PDF files, and I just saved a copy of each...just in case
> you can't find them.
>
> A Google search on phrases like "network analysis application note" and
> "VNA application note" should yield some interesting things. Here's
> one thing I found, which has links to others:
> http://na.tm.agilent.com/vnahelp/appnotes.html
>
> Finally, there is an old HP ap note on S-parameters that you should try
> to find. It _may_ be on the Agilent web site, but if not, a Google
> search will probably turn it up. Though a Vector Network Analyzer does
> not necessarily have to do S-parameter measurements, the 8753 is set up
> to do them as its fundamental measurement, and they are generally
> useful in making higher frequency measurements, since the standard
> methodology in the industry is to use S parameters to characterize both
> passive and active devices. If you look at network analyzers on eBay,
> you may see ones offered without the S-parameter test set, and you can
> find the S-parameter test sets offered separately; that's all fine so
> long as you understand what you are looking at.

Thank you for all this useful information.

2759. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 06:10:32 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142403032.631680.97570@j33g2000cwa.googlegroups.com>
Source record: 63070

FWIW, the "single loop terminated in a diode" that provides both magnetic and electric coupling at the same time is not the only way to make a directional coupler. It can be done with a ferrite toroid to measure the current and a capacitive voltage divider to measure the voltage; it can be done with a pair of identical RF transformers, one to monitor the voltage (connected step-down across the line) and one to monitor the current (connected step-up in series with the line). In fact, RFSim99 has a window you can access from the Tools-->Component-->Coupler pulldown menu, that will help design a directional coupler in several different ways. (Beware that the coupling they tell you for coupled lines is only for coupling sections 1/4 wave [or 3/4 or 5/4 or...] long.) Of the ones shown there, only the transformer one is broadband.

Cheers,
Tom

2760. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 06:53:21 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <18qke3-do6.ln1@p400bob.personal.cox.net>
Source record: 63071

Hi Frank

The pgm I was using complained about Seg.Len/Rad < 6 for which I
adjusted the seg lengths for accordingly. I guess the warnings are
different for each software front end.

More reading and expermenting to do! Tnxs for your input.

Cheers Bob

Frank's wrote:

>
> Bob, while your model does not produce any errors with NEC 2, the
> "Average Gain Test" (AGT) returns:
>
> Freq.(MHz) Wavelength(m) Avg. Power Avg. Power (dB) Comments
> ---
> 146.00000 2.05340 0.78364 -1.05885
> Questionable
>
> All GW cards return a warning: " Seg.Len/Rad < 8. Also the pole
> segmentation is considered too large.
>
> It appears that accurate modelling of such a structure in NEC 2 is not
> possible unless you reduce the size of your conductors.
>
> 73,
>
> Frank
>
>

2761. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 08:38:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <33kf121j2i9kjcodd345o8ahdijq7ibuua@4ax.com>
Source record: 63072

On Wed, 15 Mar 2006 01:39:54 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Tom Donaly wrote:
>> You load your antennas with a Tesla coil? Did you read the part
>> about a Tesla coil going to a lumped inductor when it was shortened?
>
>A minimum Tesla coil is 1/4WL. My 75m bugcatcher coil
>mounted on my pickup as a base-loaded coil with no
>whip is 1/4WL on 6.6 MHz.

An 11.4 meter tall bugcatcher coil - sure.... Such are the rewards of
a Xerox based education.

2762. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 12:23:45 UTC
From: richardharrison@webtv.net
Message-ID: <23730-44180751-57@storefull-3254.bay.webtv.net>
Source record: 63073

Tom, K7ITM wrote:
"FWIW, the "aingle loop terminated in a diode" that provides both magnetic and electric coupling at the same time" is not the only way to make a directional coupler."

Agteed, but the Bird Electronic Corporation has been successful making the plug-ins for their "Thruline Wattmeter" that way for about 50 years.

Best regards, Richard Harroison, KB5WZI

2763. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 13:18:11 UTC
From: Harry Gross <harry144@optonline.net>
Message-ID: <muURf.1009$5e4.708@fe08.lga>
Source record: 63074

Thanks for all the input. I'll be playing with the idea for the next few weeks/months, and I'll let you all know how it works out.

2764. FM TRANSCEIVERS @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 14:40:55 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1142433655.827787.26100@i40g2000cwc.googlegroups.com>
Source record: 63075

does anyone of you knows of fm transceivers at 2.4GHz?if yes,where
could i possibly buy them?
thanks!

2765. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 15:02:23 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <30WRf.738$4L1.193@newssvr11.news.prodigy.com>
Source record: 63076

Richard Clark wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>A minimum Tesla coil is 1/4WL. My 75m bugcatcher coil
>>mounted on my pickup as a base-loaded coil with no
>>whip is 1/4WL on 6.6 MHz.
>
> An 11.4 meter tall bugcatcher coil - sure.... Such are the rewards of
> a Xerox based education.

The physical height of my 75m bugcatcher coil is about 0.167 meters.
Dividing 0.167m by 11.4m gives the velocity factor equal to 0.015.

Your 11.4 meter value assumes a VF of zero. Multiply the 11.4 meters
by the VF of the environment and you will obtain the physical length
for something with an electrical length of 90 degrees.

To obtain an electrical 90 degrees using RG-213:

11.4m * 0.66 = 7.5m

To obtain an electrical 90 degrees using my 75m bugcatcher coil:

11.4m * 0.015 = 0.167m
--
73, Cecil http://www.qsl.net/w5dxp

2766. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 15:06:52 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <g4WRf.4455$tW2.4198@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63077

Objection, your Honor! Answer is unresponsive to the question.

Sustained.

8-)

Gee Cecil, how does one learn of such a "hidden mathematical concept", when it does not seem to be embodied in the formalism?

Let's try again.

Suppose the standing wave is examined to perfection. Everything that can be determined is measured without error. Now we take the superposition in reverse; specifically we divide the standing wave into forward and reverse traveling components. It would seem that we have a complete and accurate definition for the two traveling wave components. The interrelations, as you call them, between the variables and parameters are fully defined by the basic math and the carefully measured standing wave.

What else is needed to describe the traveling waves? Additional variables? Additional coefficients or parameters? Additional hidden mathematical concepts?

There seems to be a lack of understanding and appreciation for what the concepts of "linear" and "superposition" really mean. These are not just mathematical concepts. When they apply it means that the system under study is fully and completely described by ** either ** the individual functional subcomponents ** or ** the full superimposed functional component. It is not necessary to use both formats, and there is no added information by doing so.

Take a look at any of your favorite antenna references with an eye toward the treatment of standing wave antennas. I believe you will find only passing discussion of traveling waves. There will be some mention of the equivalence between the two types of waves, but little else. It is unlikely that you will find anything that says you will get more information if you take the time and trouble to analyze traveling waves.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> As you have stated, including references from Hecht, it is customary

>> to mathematically show traveling waves in the form: cos (kz +/- wt)
>> Through straightforward addition and simple trigonometry is is seen
>> that the standing wave corresponding to the sum of equal magnitude
>> forward and reverse traveling waves has the form: cos (kz) * cos (wt)
>
>
> I see I made a typo and typed a '+' sign in my previous equation.
> Of course, it should have been a '*' sign for multiply.
>
>> Are there some hidden variables that have not been considered?
>
>
> Not a hidden variable, but there seems to be a hidden
> mathematical concept, at least hidden from some individuals.
>
> In case some might not know, 'z' is the position up and down
> the wire, omega (w) is our old friend 2*pi*f, and 't' is, of
> course, time.
>
> In the traveling wave equation, cos(kz +/- wt), the position on
> the wire and omega*time are added or subtracted *before* the cosine
> function is taken. That means that the position on the wire and the
> phase velocity are inter-related. One cannot have one without the
> other. And that is indeed a characteristic of a traveling
> wave. Physical position, frequency, and time all go into
> making a traveling wave. It is modeled as a rotating phasor.
>
> However, in the equation, cos(kz) * cos(wt), the physical position,
> 'z' is disconnected from the phase velocity, 'wt'. The standing wave
> is no longer moving in the 'z' dimension. If you pick a 'z' and hold
> it constant, i.e. choose a single point on the wire, the standing
> wave becomes simply some constant times cos(wt). Thus at any fixed
> point on the line, the standing wave is not moving - it is just
> oscillating at the 'wt' rate and a current probe will certainly pick
> up the H-field signal. The phase of the standing wave current is
> everywhere, up and down the 1/2WL thin-wire, equal to zero. The sum
> of the forward phasor and reflected phasor doesn't rotate. Its phase
> doesn't change with position. Only its magnitude changes with position
> and if the forward wave magnitude equals the reflected wave magnitude,
> it is not flowing in the real sense that current flows. It is a
> standing wave and it is just standing there.
>
> The main thing to realize is that the standing wave equation
> divorces the position of the standing wave from its phase
> velocity such that the phase velocity is not active in the
> 'z' dimension, i.e. up and down the wire. The standing wave
> current "pseudo phasor" is not rotating. The standing wave
> is not going anywhere. It is not flowing along a wire or
> through a coil. Measuring its phase is meaningless because
> the phase is already known to be constant and unchanging from

> tip to tip in a 1/2WL dipole or across a loading coil in a
> mobile antenna.
>
> Thinking that standing wave current flows from the middle of a
> dipole to the ends is just a misconception. The equation for
> a standing wave indicates that it doesn't flow. What is flowing
> are the forward and reflected waves.

2767. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 15:13:20 UTC
From: richardharrison@webtv.net
Message-ID: <2813-44182F10-1461@storefull-3257.bay.webtv.net>
Source record: 63079

Tom, W8JI wrote:
"The shorter element doesn`t direct. It reradiates energy."

On page 905 of Terman`s 1955 edition he writes:
"If resonant at a higher frequency than is being transmitted, the parasitic antenna acts as a "director" and tends to concentrate the radiated field in its direction."

"Director" in quotation marks means: that is what they are called. Pity the fool who argues with Terman!

Best regards, Richard Harrison, KB5WZI

2768. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 15:15:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <4cWRf.742$4L1.590@newssvr11.news.prodigy.com>
Source record: 63078

Richard Harrison wrote:

> Tom, K7ITM wrote:
> "FWIW, the "aingle loop terminated in a diode" that provides both
> magnetic and electric coupling at the same time" is not the only way to
> make a directional coupler."
>
> Agreed, but the Bird Electronic Corporation has been successful making
> the plug-ins for their "Thruline Wattmeter" that way for about 50 years.

My old Heathkit HM-15 SWR meter has a short slotted through-line
with two parallel pick up wires located about halfway between the
center conductor and the shield. A 50 ohm resistor to ground at
one end kills the voltage in that direction. A diode at the
other end rectifies the voltage in the opposite direction.
With two resistors and two diodes on opposite ends of the two
pickup wires, they separate the forward wave from the reflected
wave.

The operation of the slotted line + pickup wires seems to be
a lot like the Thruline element in a Bird but with no slug
to rotate.
--
73, Cecil http://www.qsl.net/w5dxp

2769. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 15:27:48 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <UnWRf.4505$tW2.2451@bgtnsc04-news.ops.worldnet.att.net>
Source record: 63080

Cecil,

WOW! Thanks! I took all of those endless physics and math classes before
the Internet arrived, so I had no idea how a standing wave was formed.

8-) 8-) 8-)

OK, the same question. It is a pretty picture, but what extra
information would be gained if somehow the traveling wave components
could be measured?

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Again, what extra information would be gained if somehow the traveling
>> wave components could be measured?
>
>
> Here's a pretty good animation of forward, reflected,
> and standing waves.
>
> http://users.pandora.be/educypedia/electronics/applets/ph14e/stwaverefl.htm

2770. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 16:12:08 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <l0fg12555qpchc8cbfg27vtbmidtg6i90h@4ax.com>
Source record: 63081

On Wed, 15 Mar 2006 15:02:23 GMT, Cecil Moore <mycall@arrl.net> wrote:
>Your 11.4 meter value assumes a VF of zero.

:-)

The crippling symptoms of Xerographic research strike again.

A quarter wave tall, two inch diameter coil is not resonant - at least
not at a fundamental in the 80M band.

2771. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 16:20:04 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <U8XRf.23185$Cp4.12053@edtnps90>
Source record: 63082

> Hi Frank
>
> The pgm I was using complained about Seg.Len/Rad < 6 for which I adjusted
> the seg lengths for accordingly. I guess the warnings are different for
> each software front end.
>
> More reading and expermenting to do! Tnxs for your input.
>
> Cheers Bob

Hi Bob, you are probably right about the different software standards. The NEC-2 Users Manual, p8, first paragraph, states: "Delta/a must be > 'about' 8 for errors < 1%". I guess the developers of 4nec2 considered the error for Delta/a > 6 to be acceptable.

Your model, in free space with no pole, does deviate a little from a thin wire dipole of the same length. Possibly the stub effects the pattern some.

Both of Cebik's books make excellent reading for NEC modeling, although oriented to Nittany's products. Also www.cebik.com is a good source of information.

73,

Frank

2772. advice on 2.4GHz switching directional antenna system for size/cost optimization.....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 16:27:38 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1142440058.721448.202200@p10g2000cwp.googlegroups.com>
Source record: 63083

im having this thought of using the corner reflector concept to stack 8
collinear antennas with 45 degree- corner reflectors each.the problem
is the total dimension of the structure(about 10inches diameter).do you
have any other recommendations?
also,i would like to make my horizontal pattern as steep as possible
and the vertical pattern as wide as possible...any thoughts on this?
thanks!

2773. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 16:47:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <yyXRf.56795$Jd.17291@newssvr25.news.prodigy.net>
Source record: 63084

Gene Fuller wrote:
> ... how does one learn of such a "hidden mathematical concept",
> when it does not seem to be embodied in the formalism?

The standing wave function equation, cos(kz)*cos*wt), is different
in kind and function from the traveling wave function equation,
cos (kz ï¿½ wt).

When two traveling waves are moving along the same path in opposite
directions, their two phasors are rotating in opposite directions. It
is the sum of their phase angles that is a constant number of degrees.
It is that constant phase angle that has been measured and reported
here. Kraus shows a plot of the standing wave angle for a 1/2WL thin-
wire dipole. It is zero from tip to tip. Kraus has already told us that
its value is zero degrees. For a non-thin-wire, it deviates from zero
degrees, but not by much. There's no good reason to keep measuring it
over and over. A quantity whose phase is fixed at zero degrees cannot
tell us anything about the phase shift (delay) through a coil or even
through a wire.

Given: The phase shift in the standing wave current through 1/8WL of
wire in a 1/2WL thin-wire dipole is zero degrees.

What valid technical conclusions can be drawn from that statement?
That there is no phase shift in 45 degrees of wire in a 1/2WL dipole?

> Suppose the standing wave is examined to perfection. Everything that can
> be determined is measured without error. Now we take the superposition
> in reverse; specifically we divide the standing wave into forward and
> reverse traveling components. It would seem that we have a complete and
> accurate definition for the two traveling wave components. The
> interrelations, as you call them, between the variables and parameters
> are fully defined by the basic math and the carefully measured standing
> wave.

No argument. What some individuals seem to have missed are key
concepts involved in that process. In fact, that very process is
what I am presenting here.

> What else is needed to describe the traveling waves? Additional
> variables? Additional coefficients or parameters? Additional hidden
> mathematical concepts?

What else is needed is already there but unrecognized by a number of
individuals. The equations for the forward and reflected waves are
different in kind and function from the equations for the standing
wave. Assuming equal magnitudes and phases for the forward and

reflected waves, the superposition of those two phasors yields a
result that is really not a bona fide phasor because it doesn't
rotate.

One cannot use a quantity whose phasor doesn't rotate to measure
phase shifts (delays) through coils or through wires. Pardon me
for having to state the obvious.

Picture one end of the 1/2WL thin-wire dipole and set the reference
phase of the forward current at 90 degrees. This is for reference
only to make the math easy. When the forward current hits the end
of the dipole, it undergoes a 180 degree phase shift and starts
traveling in the opposite direction as the reflected current. For
ease of math, let's assume the magnitude of the forward current and
reflected current at the end of the dipole is one amp.

Here's what the standing wave current will be at points along the
dipole wire looking back toward the center. The first column is
the number of degrees back toward the center from the end of
the dipole, i.e. the end of the dipole is the zero degree reference
for 'z'. The center of the dipole is obviously 90 degrees away
from the end.

Back forward current reflected current standing wave current
0 deg 1 at 90 deg 1 at -90 deg zero
15 deg 1 at 75 deg 1 at -75 deg 0.52 at 0 deg
30 deg 1 at 60 deg 1 at -60 deg 1.00 at 0 deg
45 deg 1 at 45 deg 1 at -45 deg 1.41 at 0 deg
60 deg 1 at 30 deg 1 at -30 deg 1.73 at 0 deg
75 deg 1 at 15 deg 1 at -15 deg 1.93 at 0 deg
90 deg 1 at 0 deg 1 at 0 deg 2.00 at 0 deg

Seven points on the standing wave current curve have been produced
by superposing the forward current and reflected current. One can
observe the phase rotation of the forward and reflected waves.
Please note the phase of the standing wave current is fixed
at zero degrees. Measuring it in the real world will produce
a measurement close to zero degrees. Its phase is already known.
Measuring it multiple times over multiple years continues to
yield the same close-to-zero value. Except for proving something
already known, those measurements were a waste of time.

The above magnitudes and phases of the standing wave current are
reproduced in a graph by Kraus, "Antennas for All Applications",
3rd edition, Figure 14-2, page 464.

> There seems to be a lack of understanding and appreciation for what the
> concepts of "linear" and "superposition" really mean. These are not just
> mathematical concepts. When they apply it means that the system under
> study is fully and completely described by ** either ** the individual
> functional subcomponents ** or ** the full superimposed functional
> component. It is not necessary to use both formats, and there is no

> added information by doing so.

No argument there. But the individual doing the superposition needs to understand exactly what he is doing or else he may make some conceptual mental blunders. Trying to measure the phase shift of a quantity that doesn't shift phases is one of those mental blunders.

> Take a look at any of your favorite antenna references with an eye
> toward the treatment of standing wave antennas. I believe you will find
> only passing discussion of traveling waves. There will be some mention
> of the equivalence between the two types of waves, but little else. It
> is unlikely that you will find anything that says you will get more
> information if you take the time and trouble to analyze traveling waves.

My only bona fide antenna references are Kraus and Balanis. Quoting:

Kraus: "A sinusoidal current distribution may be regarded as the standing wave produced by two uniform (unattenuated) traveling waves of equal amplitude moving in opposite directions along the antenna."

Balanis: "The sinusoidal current distribution of long open-ended linear antennas is a standing wave constructed by two waves of equal amplitude and 180 degree phase difference at the open-end traveling in opposite directions along its length."

Balanis: "The current and voltage distributions on open-ended wire antennas are similar to the standing wave patterns on open-ended transmission lines."

Balanis: "Standing wave antennas, such as the dipole, can be analyzed as traveling wave antennas with waves propagating in opposite directions (forward and backward) and represented by traveling wave currents ..."
--
73, Cecil http://www.qsl.net/w5dxp

2774. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:03:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0OXRf.56798$Jd.55726@newssvr25.news.prodigy.net>
Source record: 63085

Gene Fuller wrote:
> OK, the same question. It is a pretty picture, but what extra
> information would be gained if somehow the traveling wave components
> could be measured?

Hopefully, some individuals would gain enough information
that they would cease trying to use a quantity that doesn't
change phase for the measurement of phase shifts. Maybe
iteration would help.

The phase shift of standing wave current through 30 degrees
of coil or wire is close to zero degrees.

The phase shift of standing wave current through 45 degrees
of coil or wire is close to zero degrees.

The phase shift of standing wave current through 75 degrees
of coil or wire is close to zero degrees.

Measuring the phase shift of standing wave current through
a wire or a coil is pointless. One cannot use a quantity
that doesn't change phase for the measurement of phase
shifts.
--
73, Cecil http://www.qsl.net/w5dxp

2775. Re: FM TRANSCEIVERS @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:10:32 UTC
From: Slow Code <em@il.here>
Message-ID: <cUXRf.3642$x94.2816@newsread1.news.pas.earthlink.net>
Source record: 63086

"mazerom" <electromagnetic377@yahoo.com> wrote in
news:1142433655.827787.26100@i40g2000cwc.googlegroups.com:

> does anyone of you knows of fm transceivers at 2.4GHz?if yes,where
> could i possibly buy them?
> thanks!
>

http://www.downeastmicrowave.com/

http://www.ssbusa.com/

Try these places. You might have to roll your own. Transverter/Down
converter.

SC

2776. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:26:42 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <m7YRf.54131$H71.9655@newssvr13.news.prodigy.com>
Source record: 63087

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> If
>> he applies his reference formulae to one of Tom's coils and it
>> doesn't show the correct phase shift, though, his theory is in trouble.
>
>
> His reference formulae are for traveling waves, not standing waves.
> We already know that the phase of the standing wave current on a
> 1/2WL thin-wire dipole varies not one degree over that entire
> 180 degrees. Yet we know the forward wave undergoes a 90 degree
> phase shift from feedpoint to tip and the reflected wave undergoes
> a 90 degree phase on the trip back to the feedpoint. Standing wave
> phase is virtually unchanging and is therefore useless for trying
> to determine the electrical length of a wire or a coil.

Tell me a couple of things, Cecil: 1. the diameter of your bugcatcher coil, and 2. the turn to turn wire spacing. I'd like to use the information, using the formulae in your reference, to see just how long your bugcatcher coil is electrically.
Thanks,
Tom Donaly, KA6RUH

2777. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:30:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <CaYRf.56800$Jd.9301@newssvr25.news.prodigy.net>
Source record: 63088

Richard Clark wrote:

> Cecil Moore <mycall@arrl.net> wrote:
>>Your 11.4 meter value assumes a VF of zero.
>
> A quarter wave tall, two inch diameter coil is not resonant - at least
> not at a fundamental in the 80M band.

Nobody said it was resonant. The electrical length at 4 MHz
can be *estimated* from the self-resonant frequency of 16 MHz.

90 degrees at 16 MHz estimates to be approximately
90(4/16) = ~23 degrees at 4 MHz. Dr. Corum's strongly suggested
minimum electrical length for valid application of the lumped-
circuit analysis is 15 degrees.

Let's do a simple calculation to see how much error would be
had by using the lumped-circuit model in the following:

X---15 degrees of 450 ohm ladder-line---50 ohm load

The lumped-circuit model says the impedance at X is 50 ohms.

The impedance at X is really 53.5+j119

According to Dr. Corum, that's the maximum acceptable error
when using the lumped-circuit model. His standards apppear
to be lower than mine.
--
73, Cecil http://www.qsl.net/w5dxp

2778. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:45:22 UTC
From: w8ji@akorn.net
Message-ID: <1142444722.334435.216960@p10g2000cwp.googlegroups.com>
Source record: 63089

Cecil Moore wrote:
> Nobody said it was resonant. The electrical length at 4 MHz
> can be *estimated* from the self-resonant frequency of 16 MHz.

That just shows how poorly we sometimes understand the workings of an inductor.

The fact an inductor has self-resonance at one frequency (16MHz) does not mean we can assume it is 90 degrees at that frequency and 45 degrees at half of that frequency!!

This business of treating an inductor like a transmission line is destined to produce theories that crash and burn.

73 Tom

2779. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 17:49:45 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <c8kg129oloe1u3ptc59qb0slc9hqsq1h0p@4ax.com>
Source record: 63090

On Wed, 15 Mar 2006 17:30:10 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Richard Clark wrote:
>
>> Cecil Moore <mycall@arrl.net> wrote:
>>>Your 11.4 meter value assumes a VF of zero.
>>
>> A quarter wave tall, two inch diameter coil is not resonant - at least
>> not at a fundamental in the 80M band.
>
>Nobody said it was resonant.

You seem to be shy of many details from your reference. VF of zero
indeed.... You can't even plug-n-chug your own referred equations.
Such are the hazards of a Xerox research method.

Hi Tom,

As you, I didn't expect to see any concrete numbers from that last
flurry of equations. I don't see how with his free mix of quarterwave
substituted as resonant to backfill an argument of a short coil
justified as a long one.

Tom's simple example, a 2 inch diameter coil of 10 inches with 100
turns seems to have buffaloed his finding the Velocity Factor or
Characteristic Impedance. And how would it compare in contrast to
Reggie's formulas? That would seem to invite discussion of results
instead, which would have collapsed this opus to a thread of three
postings.

As such, it serves only to entertain on a rainy morning (your weather
may vary - but in Seattle, never).

73's
Richard Clark, KB7QHC

2780. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:01:51 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <jEYRf.565995$qk4.189767@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63091

Cecil,

Thanks. Your quotes demonstrate my point quite nicely. There is not the slightest hint that there is any special value in treating a standing wave as a pair of traveling waves. The statements say only that it is possible. Indeed, it is clear from the quotes that the two treatments are equivalent.

Of course these authors were disadvantaged by a lack of understanding of your "hidden mathematical concepts." 8-)

73,
Gene
W4SZ

Cecil Moore wrote:

[large snip]

> My only bona fide antenna references are Kraus and Balanis. Quoting:
>
> Kraus: "A sinusoidal current distribution may be regarded as the standing
> wave produced by two uniform (unattenuated) traveling waves of equal
> amplitude moving in opposite directions along the antenna."
>
> Balanis: "The sinusoidal current distribution of long open-ended linear
> antennas is a standing wave constructed by two waves of equal amplitude
> and 180 degree phase difference at the open-end traveling in opposite
> directions along its length."
>
> Balanis: "The current and voltage distributions on open-ended wire
> antennas are similar to the standing wave patterns on open-ended
> transmission lines."
>
> Balanis: "Standing wave antennas, such as the dipole, can be analyzed
> as traveling wave antennas with waves propagating in opposite directions
> (forward and backward) and represented by traveling wave currents ..."

2781. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:03:28 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QFYRf.60142$dW3.27454@newssvr21.news.prodigy.com>
Source record: 63092

Tom Donaly wrote:
> Tell me a couple of things, Cecil: 1. the diameter of your bugcatcher
> coil, and 2. the turn to turn wire spacing. I'd like to use the
> information, using the formulae in your reference, to see just how
> long your bugcatcher coil is electrically.

Please note that when my 75m bugcatcher coil is mounted
just above my GMC pickup ground plane, it is electrically
almost four times longer than it is laying on a stack of
books in my hamshack. The coil capacitance to ground is
obviously a lot higher when mounted over a ground plane.
The ground plane reduces the VF to approximately 1/4
the value obtained in isolation.

1. The measured self-resonant frequency of the coil
mounted on my pickup is ~6.6 MHz.

2. The measured self-resonant frequency of the coil
on a mag mount on my all-metal desk is ~6.6 MHz.

3. The measured self-resonant frequency of the coil
isolated from any ground is ~24.5 MHz.

The self-resonant frequency needs to be measured in
the environment in which it is installed. That means
one needs to model the coil 3 inches above a perfect
ground plane before calculating the self-resonant
frequency, Z0, or VF. I doubt that Dr. Corum's equations
take that into account since it would seem self defeating
to operate a Tesla coil over a physically close ground
plane. But I could be wrong on that point.

The coil data is: ~6" dia, ~6.7" long, 26.5 T, seems
very close to 4 TPI. Looks to be #14 solid wire.
--
73, Cecil http://www.qsl.net/w5dxp

2782. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:08:14 UTC
From: Bob Dixon <dixon.8@osu.edu>
Message-ID: <dixon.8-9486E7.13081415032006@charm.magnus.acs.ohio-state.edu>
Source record: 63093

Here's a related question:

WHY do parasitic elements work the way they do?

Let's consider a two-element yagi with a driven element and a parasitic "reflector", ie a parasitic element longer than a half wavelength. (We could make the same arguments in reverse for a "director".)

The driven element radiates an electromagnetic field, some of which impinges on the reflector. This causes a current to flow in the reflector, and a voltage to appear across it. Since it is longer than a half wavelength, it acts inductive, and the current LAGS behind the voltage.

The reflector then radiates its own electromagnetic field in all directions, some of which heads back toward the driven element. (For simplicity, we ignore the mutual impedance effects and the new current which is induced in the driven element.)

If the fields from the reflector and driven element are to be in phase in the direction from the reflector towards the driven element, then the radiated field from the reflector must be advanced in phase by how much it lost traveling from the driven element to the reflector, plus another same amount as it travels back. So the phase of the field radiated by the reflector LEADS the phase of the driven element significantly.

Now the question is (assuming this is all right so far):
How do we explain the phase of the field radiated from the reflector, in terms of the phase of the current and voltage in the reflector?

Bob W8ERD

2783. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:10:35 UTC
From: w8ji@akorn.net
Message-ID: <1142446235.403681.295850@u72g2000cwu.googlegroups.com>
Source record: 63094

Food for thought.

At this moment in time it seems Cecil is claiming an inductor acts like so many electrical degrees, but of course at any moment another waffle might pops out of the Texas toaster and change everything.

Let's assume we have a mobile antenna that is 25 electrical degrees tall. Now following the logic a loading coil acts like a transmission line, we have a 65-degree loading coil.

Following the same twisted logic, since the loading inductor is 65-degrees long, we should be able the move it anywhere in the antenna without changing antenna tuning.

Our 75 meter antenna should also work on 25 meters as a 3/4 wave antenna, and on 37.5 meters as a half-wave.

Of course we all know it doesn't behave anything close to this way.

Wouldn't it be nice if Cecil could show us all how to predict the resoances of an antenna based on his idea that loading inductor acts like a transmission line? Where are the design equations we can all use?

73 Tom

2784. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:29:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <32ZRf.60161$dW3.27014@newssvr21.news.prodigy.com>
Source record: 63095

Gene Fuller wrote:
> Indeed, it is clear from the quotes that the two treatments
> are equivalent.

And indeed, the two treatments are equivalent for anyone who
understands both of them. The two treatments are obviously
not equivalent for someone who understands one and not the
other. It is an individual ignorance problem, not a problem
with the models.

If the standing wave analysis results are reported by an
individual to be different from the traveling wave analysis
results, what can we assume? If they are equivalent, why would
the results ever be different except for the ignorance
of the reporter?

Here is a 'yes' or 'no' technical question for everyone.
Is it possible to measure a phase shift through a wire
or coil using a signal (standing wave current) that
doesn't ever change phase?

The answer to that question is the entire crux of the
argument. If anyone answers 'yes' to that question, please
explain in detail how to accomplish that measurement feat.

> Of course these authors were disadvantaged by a lack of understanding of
> your "hidden mathematical concepts." 8-)

I thought we had agreed to stop using inuendo to try to
influence a technical argument. The mathematical concepts
are certainly NOT hidden. They are there for all to
understand and accept but are being ignored by certain
individuals.
--
73, Cecil http://www.qsl.net/w5dxp

2785. Re: FM TRANSCEIVERS @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:42:31 UTC
From: fmmck@aol.com
Message-ID: <fmmck-1503061342310001@acaa5017.ipt.aol.com>
Source record: 63096

In article <1142433655.827787.26100@i40g2000cwc.googlegroups.com>,
"mazerom" <electromagnetic377@yahoo.com> wrote:

> does anyone of you knows of fm transceivers at 2.4GHz?if yes,where
> could i possibly buy them?
> thanks!

Mazerom-

There is the one watt Kenwood TM-2400, which looks like the TM-642/742/942
Tri-Band Transceivers. I understand it has one double-width 2400-2450 MHz
module, leaving room for one more module. As far as I know, it is only
available in Japan.

Photograph at http://www.rigpix.com/kenwood/tm2400.htm.

A discussion is at
http://groups-beta.google.com/group/rec.radio.amateur.policy/messages/
6c91b006cb49575f,9cbc66bf773d1dbf?hl=en&thread_id=a830d56033bfe8f4&mode=thread
&noheader=1&q=kenwood+%22tm-2400%22&_done=%2Fgroup%2Frec.radio.amateur.policy
%2Fbrowse_frm%2Fthread%2Fa830d56033bfe8f4%2F9cbc66bf773d1dbf%3Fq%3Dkenwood+
%22tm-2400%22%26rnum%3D2%26hl%3Den%26#doc_9cbc66bf773d1dbf

You will need to edit this URL to delete line breaks. The news server
wouldn't allow the long line to be posted.

73, Fred, K4DII

2786. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 18:55:05 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <dqZRf.60164$dW3.48604@newssvr21.news.prodigy.com>
Source record: 63097

w8ji@akorn.net wrote:
> That just shows how poorly we sometimes understand the workings of an
> inductor.

There you go again, implying through inuendo that that 'we'
includes me but not you. This discussion is not about you
and me so I will make a few generalized statements.

An individual can understand perfectly how an inductor
works within the presuppositions of the lumped-circuit
model yet be completely ignorant of how an inductor
actually works in the real world in a distributed-network
environment.

The presuppositions of the lumped-circuit model cannot
be used to prove the validity of the lumped-circuit
model. The presuppositions of the lumped-circuit model
are invalid for many distributed-network environments.

This is a technical subject so I will ask a technical
question:

How is it possible to use a signal (standing wave current)
that is known not to change phase, to measure the phase delay
through a wire or coil?

Kraus provides a graph of that unchanging phase in Figure
14-2 of "Antennas for All Applications", 3rd edition.

> The fact an inductor has self-resonance at one frequency (16MHz) does
> not mean we can assume it is 90 degrees at that frequency and 45
> degrees at half of that frequency!!

It certainly means we can make those assumptions within some
estimated degree of accuracy because they agree with the laws
of physics which don't change just because some individual
rejects them. Helicals, in general, obey the transmission line
laws of physics. They have relatively constant values of L, C,
R, and G over a certain range of frequencies. They exhibit the
characteristics of Z0 and VF. They do NOT exhibit the
presuppositions of the lumped-circuit model.

> This business of treating an inductor like a transmission line is
> destined to produce theories that crash and burn.

Inductors have been treated like transmission lines for the
better part of a century by engineers using the distributed

network model. Since the distributed network model is a
superset of the lumped-circuit model, why would they ever
crash and burn?
--
73, Cecil http://www.qsl.net/w5dxp

2787. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 19:10:02 UTC
From: w8ji@akorn.net
Message-ID: <1142449802.552573.276910@j52g2000cwj.googlegroups.com>
Source record: 63098

> Here is a 'yes' or 'no' technical question for everyone.
> Is it possible to measure a phase shift through a wire
> or coil using a signal (standing wave current) that
> doesn't ever change phase?

There is no "standing wave current". There is only current.
Current can't stand.

Phase difference can be measured in a system that has standing waves,
just as it can in one without standing waves.

> The answer to that question is the entire crux of the
> argument. If anyone answers 'yes' to that question, please
> explain in detail how to accomplish that measurement feat.

Any number of ways, if we disallow the impossible situiation where you
seem to think we can have current "standing still". Direct measurement
methods abound.

First Cecil says:
> I thought we had agreed to stop using inuendo to try to
> influence a technical argument. The mathematical concepts
> are certainly NOT hidden.

Then Cecil does the opposite of what he asks Gene to do:
>They are there for all to
> understand and accept but are being ignored by certain
> individuals.

Cecil first asks Gene to stop using inuendo.
One sentence later, Cecil uses inuendo. :-)

73 Tom

2788. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 19:10:11 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <4ipg1294nlio63q1vird4t6n3ajdckp361@4ax.com>
Source record: 63099

On 15 Mar 2006 10:10:35 -0800, w8ji@akorn.net wrote:

>Let's assume we have a

Tom,

One coil has him stumbling to do his own math with his own references.
There is no reason to fill the road with intellectual boulders when he
trips over gravel.

73's
Richard Clark, KB7QHC

2789. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 19:14:04 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <vmpg12hcgd6udoh7gba2neucd4ja33qscr@4ax.com>
Source record: 63100

On Wed, 15 Mar 2006 18:03:28 GMT, Cecil Moore <mycall@arrl.net> wrote:

>The coil data is: ~6" dia, ~6.7" long, 26.5 T, seems
>very close to 4 TPI. Looks to be #14 solid wire.

Hmmm, dare I plunge into the next, obvious question?

Provide the Velocity Factor and Characteristic Impedance per the
formulas you offered:

>Tom Donaly wrote:
>> What's the formula, Cecil?
>
>http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (32)
>
>The velocity factor can also be measured from the self-
>resonant frequency at 1/4WL. VF = 0.25(1/f)
>
>> I suppose you also
>> have something that will tell us how to find your coil's characteristic
>> impedance; o.k., out with it.
>
>http://www.ttr.com/TELSIKS2001-MASTER-1.pdf equation (43)

and we can then achieve closure by comparing the same results with
Reggie's formulas.

2790. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 19:56:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Fj_Rf.1035$4L1.443@newssvr11.news.prodigy.com>
Source record: 63101

w8ji@akorn.net wrote:

> Food for thought.
>
> At this moment in time it seems Cecil is claiming an inductor acts like
> so many electrical degrees, but of course at any moment another waffle
> might pops out of the Texas toaster and change everything.

That's not food for thought. That's emotional gut feelings. I
thought we agreed to cease and desist from ad hominem attacks?

> Let's assume we have a mobile antenna that is 25 electrical degrees
> tall. Now following the logic a loading coil acts like a transmission
> line, we have a 65-degree loading coil.

False assumption! The phase delay through the coil is what it
is and we don't know exactly what it is. We do know it is not what
has been measured and reported using a signal source (standing wave
current) that doesn't ever change phase.

Our present choice is between a reported measurement that is
100% flawed, in the absolute sense of the word, and an estimate
with unknown accuracy based on the laws of physics. Given those
two, and only two, present choices, which choice should one make?

Please see the end of this posting for a description of the
logical diversion that is taking place here.

The phase delay through the coil is what it is and we don't know
exactly what it is. We do know it is not zero as the standing wave
current phase shift measurement would predict.

Let me focus the subject of the argument back upon the actual
subject of the argument and try to avoid diversions into the
unknown, like the above.

How does one measure the phase delay through a coil or wire
using a signal with forever unchanging phase? All of the phase
delay experiments so far have used the above flawed method.
So far, we only have experimental measurements that are flawed
except for the self-resonant experiments.

Which is preferred? The results from experiments known to
be 100% flawed or estimates with unknown accuracy based on
the laws of physics? Those are presently our only two choices.

> Following the same twisted logic, since the loading inductor is
> 65-degrees long, we should be able the move it anywhere in the antenna

> without changing antenna tuning.

False assumption! The superposition of all four of the
forward and reflected waves is much more complicated than that.

> Our 75 meter antenna should also work on 25 meters as a 3/4 wave
> antenna, and on 37.5 meters as a half-wave.

It's not as simple as that but I have the EZNEC current
distribution patterns that indicate something akin to
that indeed does develop. Give me a few hours and I
will post those results.

> Where are the design equations we can all use?

Asked and answered but not sure of the accuracy applied
to 75m bugcatcher loading coils. Someone is working on
that. Please stand by.

The logical diversion that is happening here goes like this:

Person A says: "The moon is 10,000 miles from the earth.

Person B says: "That can't be true."

Person A says: "How far do you say the moon is from the earth?"

Person B says: "I don't know, but I do know it is not 10,000
miles."

Person A says: "Well, if you don't know and can't give me the
correct answer, I am right and you are wrong. The moon is
10,000 miles from the earth."

Does an absolutely false answer beat ignorance?
--
73, Cecil http://www.qsl.net/w5dxp

2791. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:00:23 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <rn_Rf.43807$2O6.31228@newssvr12.news.prodigy.com>
Source record: 63102

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> Tell me a couple of things, Cecil: 1. the diameter of your bugcatcher
>> coil, and 2. the turn to turn wire spacing. I'd like to use the
>> information, using the formulae in your reference, to see just how
>> long your bugcatcher coil is electrically.
>
>
> Please note that when my 75m bugcatcher coil is mounted
> just above my GMC pickup ground plane, it is electrically
> almost four times longer than it is laying on a stack of
> books in my hamshack. The coil capacitance to ground is
> obviously a lot higher when mounted over a ground plane.
> The ground plane reduces the VF to approximately 1/4
> the value obtained in isolation.
>
> 1. The measured self-resonant frequency of the coil
> mounted on my pickup is ~6.6 MHz.
>
> 2. The measured self-resonant frequency of the coil
> on a mag mount on my all-metal desk is ~6.6 MHz.
>
> 3. The measured self-resonant frequency of the coil
> isolated from any ground is ~24.5 MHz.
>
> The self-resonant frequency needs to be measured in
> the environment in which it is installed. That means
> one needs to model the coil 3 inches above a perfect
> ground plane before calculating the self-resonant
> frequency, Z0, or VF. I doubt that Dr. Corum's equations
> take that into account since it would seem self defeating
> to operate a Tesla coil over a physically close ground
> plane. But I could be wrong on that point.
>
> The coil data is: ~6" dia, ~6.7" long, 26.5 T, seems
> very close to 4 TPI. Looks to be #14 solid wire.

Thanks, Cecil.
73,
Tom Donaly, KA6RUH

2792. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:05:56 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Es_Rf.1043$4L1.380@newssvr11.news.prodigy.com>
Source record: 63103

w8ji@akorn.net wrote:
> There is no "standing wave current". There is only current.
> Current can't stand.

Addressed and proven to be a false statement. cos(kz)*cos(wt)
proves it is standing and not flowing.

> Phase difference can be measured in a system that has standing waves,
> just as it can in one without standing waves.

Addressed and proven to be a false statement. A signal
with unchanging phase cannot be used to measure the
phase delay through a wire or coil.

> Any number of ways, if we disallow the impossible situiation where you
> seem to think we can have current "standing still".

Please take a look at the equation for standing wave
current. It proves that the standing wave current is
standing still, just oscillating in place at any point
on the wire.
--
73, Cecil http://www.qsl.net/w5dxp

2793. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:08:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Su_Rf.1044$4L1.757@newssvr11.news.prodigy.com>
Source record: 63104

Richard Clark wrote:
> Provide the Velocity Factor and Characteristic Impedance per the
> formulas you offered:

Tom Donaly has graciously volunteered to provide those values.
Please stand by.
--
73, Cecil http://www.qsl.net/w5dxp

2794. Re: Balun Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:18:53 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121gtliq5kegh47@corp.supernews.com>
Source record: 63105

Correction:

Roy Lewallen wrote:
> . . .
> Connect the input terminals together and the output terminals together.
> Connect it to your antenna analyzer as a plain series load -- that is,
> connect the balun input terminals to the analyzer center conductor and
> the balun output terminals to the analyzer connector shell (or reverse
> the two -- it doesn't matter). Measure the impedance at frequencies of
> interest. You generally need a minimum of around 500 - 1000 ohms for an
> effective balun. The angle of the impedance doesn't matter unless you're
> running a lot of power, in which case a low angle (that is, a primarily
> resistive impedance) might result in objectionable balun heating.
> . . .

This test works only with a current balun. If done with a voltage balun, the impedance should be very low.

Although there are ways to test for the proper functioning of a voltage balun, that is, to test for the voltages at the output terminals being equal and opposite with respect to the "cold" side of the input, they don't tell you how effective it'll be in stopping common mode currents on feedlines. In fact, certain imperfections might improve the performance of a voltage balun in that application. I don't recommend using a voltage balun for feeding antennas for the reasons I gave in http://eznec.com/Amateur/Articles/Baluns.pdf.

I apologize for the error. Thanks very much to Owen Duffy for pointing it out to me.

Roy Lewallen, W7EL

2795. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:43:45 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <rvug12t5f2finc2is174os9rtbtq04rjp5@4ax.com>
Source record: 63106

On Wed, 15 Mar 2006 20:08:18 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Richard Clark wrote:
>> Provide the Velocity Factor and Characteristic Impedance per the
>> formulas you offered:
>
>Tom Donaly has graciously volunteered to provide those values.
>Please stand by.

You have nothing to show of your own work employing your own
references?

I can do this myself, as certainly Tom can too; but it says nothing
about your well coming up dry when we ask you to carry your own water
in supporting your claims.

2796. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:45:33 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121gv7dkt7iug78@corp.supernews.com>
Source record: 63107

Bob Dixon wrote:
> Here's a related question:
>
> WHY do parasitic elements work the way they do?
>
> Let's consider a two-element yagi with a driven element and a parasitic
> "reflector", ie a parasitic element longer than a half wavelength.
> (We could make the same arguments in reverse for a "director".)
>
> The driven element radiates an electromagnetic field, some of which
> impinges on the reflector. This causes a current to flow in the
> reflector, and a voltage to appear across it. Since it is longer than a
> half wavelength, it acts inductive, and the current LAGS behind the
> voltage.
>
> The reflector then radiates its own electromagnetic field in all
> directions, some of which heads back toward the driven element.
> (For simplicity, we ignore the mutual impedance effects and the new
> current which is induced in the driven element.)

You also need to ignore the fields from all other elements if present. They can have a major impact on the overall field to the rear which the reflector must attempt to cancel.

> If the fields from the reflector and driven element are to be in phase
> in the direction from the reflector towards the driven element, then the
> radiated field from the reflector must be advanced in phase by how much
> it lost traveling from the driven element to the reflector, plus another
> same amount as it travels back. So the phase of the field radiated by
> the reflector LEADS the phase of the driven element significantly.

But the purpose of the reflector isn't to make a field which reinforces the driven element's field in the forward direction, but to make a field which cancels it in the reverse direction. For this to happen most effectively, the phase lag of the reflector current (relative to the driven element current) and the distance between reflector and driven element should add to 180 degrees. In practice, both the phase and magnitude of the current induced in the reflector change with element length. And in general, the farther you get from self-resonance, the smaller induced current. So as you adjust the element length, by the time you reach the optimum phase angle of induced current, its magnitude is too small for good cancellation. A compromise is inevitably reached, resulting in an acceptable but far from perfect front/back ratio.

> Now the question is (assuming this is all right so far):
> How do we explain the phase of the field radiated from the reflector, in
> terms of the phase of the current and voltage in the reflector?

The magnitude and phase of the field are directly related to the magnitude and phase of the current. The incremental longitudinal voltage in the element can be ignored in calculation of fields. While it's possible to base the field calculation on the longitudinal voltage rather than the current, I don't believe I've ever seen this done.

Roy Lewallen, W7EL

2797. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 20:57:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Rc%Rf.47634$F_3.41824@newssvr29.news.prodigy.net>
Source record: 63108

Richard Clark wrote:
.> I can do this myself, as certainly Tom can too; but it says nothing
> about your well coming up dry when we ask you to carry your own water
> in supporting your claims.

Pure humor with zero technical content follows:
So sue me for being lazy. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2798. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 21:01:51 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <tvvg12pc7jvpmncmbda8m8drtjd8g419bi@4ax.com>
Source record: 63109

On Wed, 15 Mar 2006 20:57:21 GMT, Cecil Moore <mycall@arrl.net> wrote:
>So sue me for being lazy. :-)

The legacy of Xerox research.

2799. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 21:10:23 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142457023.137164.123390@j52g2000cwj.googlegroups.com>
Source record: 63110

I do believe that Tom is echoing what Terman is stating. Look again at
I totally disagree with the majority of this posting which
misrepresents what Terman actually said
into a self serving statement to give cover to an earlier misstatement.

Terman's statement
. He states.....the parrasitic antenna acts as a "director"
He does not say it is a director and puts it into quotation purely that
is what others call it.
If he felt that it was self explanable he would have stated that it was
a director without the need for quotation marks and prefixes the term
with the word "acts" for clarification instead of the word "is" He then
follows on with his description that further explanion to emphasis the
need to place the term inside quotationas by adding his reasons
...."and tends to concentrate the radiated field in its direction"
Note he states "tends" rather than the word "directs "because as he
stated earlier
"it acts...." and not "is" and tjhen goes on to add the coup de gras by
stating what it dioes do......
"tends to concentrate the radiated field in its direction".
I view that asa very precise statement in describing what some call a
director as actually being a field with a tendency...e.t.c.
Frankly it reiterates what Tom said where one can be doomed if it not
described correctly
and it would appear that Terman had the term "director" very much in
mind when he described what others termed as a director. He certainly
was an amazing man who saw from the beginning
the need to refrain from the word "direct" or "director" as the field
generated does not warrent such an absolute word. This may appear to be
semantics as far as you may be concerned but the above analysis of what
he actually said provides a confirmation of what others were saying.
I would agreee howver with a small point that you reffered to and that
was regarding a fool who argues with Termam as one must first
understand what one actually read and convey the message to the brain
where the emphasis is to confirm what one wanted to read'
Art

2800. Re: Yagi Antenna Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 21:10:26 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142457024.381882.95260@i39g2000cwa.googlegroups.com>
Source record: 63111

I do believe that Tom is echoing what Terman is stating. Look again at
I totally disagree with the majority of this posting which
misrepresents what Terman actually said
into a self serving statement to give cover to an earlier misstatement.

Terman's statement
. He states.....the parrasitic antenna acts as a "director"
He does not say it is a director and puts it into quotation purely that
is what others call it.
If he felt that it was self explanable he would have stated that it was
a director without the need for quotation marks and prefixes the term
with the word "acts" for clarification instead of the word "is" He then
follows on with his description that further explanion to emphasis the
need to place the term inside quotationas by adding his reasons
...."and tends to concentrate the radiated field in its direction"
Note he states "tends" rather than the word "directs "because as he
stated earlier
"it acts...." and not "is" and tjhen goes on to add the coup de gras by
stating what it dioes do......
"tends to concentrate the radiated field in its direction".
I view that asa very precise statement in describing what some call a
director as actually being a field with a tendency...e.t.c.
Frankly it reiterates what Tom said where one can be doomed if it not
described correctly
and it would appear that Terman had the term "director" very much in
mind when he described what others termed as a director. He certainly
was an amazing man who saw from the beginning
the need to refrain from the word "direct" or "director" as the field
generated does not warrent such an absolute word. This may appear to be
semantics as far as you may be concerned but the above analysis of what
he actually said provides a confirmation of what others were saying.
I would agreee howver with a small point that you reffered to and that
was regarding a fool who argues with Termam as one must first
understand what one actually read and convey the message to the brain
where the emphasis is to confirm what one wanted to read'
Art

2801. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 21:29:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KG%Rf.47645$F_3.5451@newssvr29.news.prodigy.net>
Source record: 63112

Richard Clark wrote:
> Cecil Moore <mycall@arrl.net> wrote:
>>So sue me for being lazy. :-)
>
> The legacy of Xerox research.

Please remind us of the technical content of your posting.
Do you think experimental technical results depend upon
whom is doing the experiment? If I dropped dead, could
Tom's results change from valid to invalid?
--
73, Cecil http://www.qsl.net/w5dxp

2802. compact antenna for short range direction finding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:06:56 UTC
From: Snide <nospam@home.com>
Message-ID: <441890ae$0$1147$7a628cd7@news.club-internet.fr>
Source record: 63113

Hello

I wand to build a short range direction finding equipment (say 200m), and I
wonder what kind of antenna would be the simplest and best for that.
the frequency will probably be around 868MHz.
the precision needs not to be very high (30°).
the antenna will be mounted on a car, and should be as small as possible.
The equipment will be mainly used in an urban environment.

Thanks for any help, tip or link

Denis

2803. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:08:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <713h125fsterthf8j8gq5bsq53fs1ijcar@4ax.com>
Source record: 63115

On Wed, 15 Mar 2006 21:29:14 GMT, Cecil Moore <mycall@arrl.net> wrote:
>Do you think experimental technical results depend upon
>whom is doing the experiment?
Clearly you have nothing to offer that conflicts in that respect.
>If I dropped dead, could Tom's results change from valid to invalid?
are you asking would you be technically dead, or clinically dead, or
dead lazy? This appears to be a reverse progression question.

None of your work appears by your admitted laxity. None of your
testing appears by lack of its accomplishment.

No pulse can be discerned through the evidence of correspondence
(classic result of The Chinese Room Argument).

Diagnosis:
Xerox induced narcosis.

2804. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:10:18 UTC
From: w8ji@akorn.net
Message-ID: <1142460618.098800.8930@p10g2000cwp.googlegroups.com>
Source record: 63114

Cecil Moore wrote:
> Richard Clark wrote:
> > Cecil Moore <mycall@arrl.net> wrote:
> >>So sue me for being lazy. :-)
> >
> > The legacy of Xerox research.
>
> Please remind us of the technical content of your posting.
> Do you think experimental technical results depend upon
> whom is doing the experiment? If I dropped dead, could
> Tom's results change from valid to invalid?
> 73, Cecil http://www.qsl.net/w5dxp

Probably, since it appears you are the only one finding fault with them.

It appears you have painted yourself into a corner by trying o apply a paper about Tesla coils that specifically states it applies only to inductors at self-resonance to inductors operating away from self-resonance.

For example, if you look at this time-delay plot:

http://www.w8ji.com/inductor_current_time_delay.htm

you'll see time delay is essentially flat except near the 16MHz self-resonant frequency and a higher-frequency resonance at 26 MHz.

If I coupled that inductor to a oscillator like a Telsa coil has, it would indeed oscillate near the frequency where the inductor has considerable time delay. That time delay is largely because the inductor looks like a combination of shunt C and series L, and is indeed in mode similar to what we find in a transmission line. It is a narrow bandwidth effect because the resonance is high-Q. It does not surprise me at all.

73 Tom

2805. Element correction for through beem Yagi elements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:17:03 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <zn0Sf.7506$dy4.5138@news-server.bigpond.net.au>
Source record: 63116

Hi,

I am in the process of building a 4-Element Yagi to operate at 915 MHz.

The design is as follows...
Element Length Distance from REFL
REFL 159mm 0mm
DE 146mm 40mm
D1 139mm 90mm
D2 132mm 155mm

Boom is 12.8mm OD square aluminium (1.6mm wall thickness)
Elements are 6mm solid aluminium rod.

The design was assuming that the elements were to be insulated from the boom but I am having trouble making small insulators to hold these in place.
It would be simpler for construction if I could simply drill through the beam and weld the rods in place or connect via a screw through the centre of the beam.

The correction factor formula I have found seems to be for insulated through-beam elements.

Q: Is there a correction factor I can apply to enable me to construct the antenna in this manner ?

Q: Does the Driven element need to be in the same plane as the other elements or can it be out of alignment (ie. If I use a small plastic enclosure to house the balun and make connection to the driven elements, the elements will not be in the middle of the beam but rather 5mm or so above the beam).

Q: Is there an alternate design I could use that would be simpler to construct. (I am looking for around 7dB gain at low angle of radiation - point to point communications link). Feedline is 50 Ohm coaxial cable, power is less than 1 Watt.

Hope I have given enough info to evoke some constructive advice, Thanks in advance for your help

Regards

David

2806. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:42:55 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <PL0Sf.43841$2O6.22839@newssvr12.news.prodigy.com>
Source record: 63117

Richard Clark wrote:
> None of your work appears by your admitted laxity. None of your
> testing appears by lack of its accomplishment.

My testing results have been reported. Here are the results
of the VF calculation for my 75m bugcatcher coil.

The test for physical structure is met. The paper asserts
that the expression gives acceptable results with errors
less than 10%.

The VF of my 75m bugcatcher coil calculates out to be
VF = 0.0175 at 6.6 MHz where it measured to be self-
resonant. That self-resonant measurement included
a length of coax and a one foot bottom section so the
actual self-resonant frequency will be somewhat higher
than I measured. I could probably make a calculation
to adjust for the coax and bottom section.

The VF calculated directly from the too-low self-
resonant frequency was 0.015 which is 14% different
from Dr. Corum's equation. Given the uncertainly in
the exact self-resonant frequency in my measurements,
that's pretty reasonable. Ballpark is all we need
to understand the concepts.

Working backward, Dr. Corum's VF would make the
coil self-resonant at 7.7 MHz. There's probably
enough slop in my measurement configuration to
account for the 1.1 MHz difference.
--
73, Cecil http://www.qsl.net/w5dxp

2807. force 12

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:47:09 UTC
From: ik7ytt <ik7ytt@gmail.com>
Message-ID: <1142462829.276577.193110@j52g2000cwj.googlegroups.com>
Source record: 63118

Anyone have the manual of force12 c3s to send via email.
Thanks ik7ytt
Andy

2808. Corner Reflector Questions

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:52:01 UTC
From: Harbin <harbinjr@adelphia.net>
Message-ID: <ArudnT95nq4UB4XZRVn-tA@adelphia.com>
Source record: 63119

Howdy:
I was wondering if anybody out here is using a corner reflector, and how they like it. I was
also wondering if you make a dual band corner reflector, do you need a duplexer, or can you run one coax? And also if there is much interference between the driven elements.

--
SeeYaa:) Harbin Osteen KG6URO

!sdohtem noitpyrcne devorppa-tnemnrevog troppus I

2809. Re: compact antenna for short range direction finding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:56:04 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <BpucnVbH0N33BoXZSa8jmw@karoo.co.uk>
Source record: 63120

Snide wrote:

> Hello
>
> I wand to build a short range direction finding equipment (say 200m), and
> I wonder what kind of antenna would be the simplest and best for that.
> the frequency will probably be around 868MHz.
> the precision needs not to be very high (30°).
> the antenna will be mounted on a car, and should be as small as possible.
> The equipment will be mainly used in an urban environment.
>
> Thanks for any help, tip or link
>
> Denis

As the wavelength is fairly low, I suggest you build a 6 * 1/4 wave antenna array and mount it on a roofrack. You can easily build a direction finder by phaseshifting the array with a pack of pin diodes.

This method is widely used for tracking vehicles.

Directivity... 868MHz is still a long wavelength for any exotic and directive antennas. But why not try building a loop yagi in a plastic tube. Use PCB FR4 with plastic foam as spacer between the radials.

But still, a 4 or 6 antenna array on a roofrack seems to be enough to catch stolen vehicles in the UK...

Cheers

Dan / M0DFI

2810. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 22:58:58 UTC
From: richardharrison@webtv.net
Message-ID: <24187-44189C32-1493@storefull-3251.bay.webtv.net>
Source record: 63121

Cecil, W5DXP wrote:
"How is it possible to use a signal (standing wave current) that is known not to change phase, to measure the phase delay through a wire or coil?"

Ignore it.

Lissajous figures result from applying signals to the vertical and horizontal deflection circuits of an oscilloscope simultaneously. Phase difference between signals of the same frequency make a distinctive pattern.

One can use coax lines with identical delays to couple the inputs with phase sampling loops. Take samples of the currents at the two points where the phase difference would be known. Amplitudes can be adjusted for a suitable pattern. It will be destinctive.

Then take samples from the same source. Add a known delay to one channel until you have reproduced the distinctive pattern you had observed when testing the felay between the points that have the unknown phase difference.

With a few elaborations, that`s how a phase monitor works.

Best regards, Richard Harrison, KB5WZI

2811. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 23:17:26 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ag1Sf.38850$_S7.21795@newssvr14.news.prodigy.com>
Source record: 63122

w8ji@akorn.net wrote:
> Probably, since it appears you are the only one finding fault with
> them.

Tom Donaly hasn't even posted any results yet. How could I
possibly be finding fault with them?

> It appears you have painted yourself into a corner by trying o apply a
> paper about Tesla coils that specifically states it applies only to
> inductors at self-resonance to inductors operating away from
> self-resonance.

Quoting from the previously referenced paper: ".. is an approximation ...
appropriate for quarterwave resonance and is valid for helices with
(5*N*D^2)/lamda < 1. N is the turns/inch, D is the diameter of the
coil, and lamda is the self-resonant frequency. That calculation
for my 75m bugcatcher coil is ~0.4 so it meets the criteria.

The VF calculation of 0.175 is therefore valid. There is no valid
reason to suspect that the VF wouldn't hold approximately down to
4 MHz and below. There is no warning of such abrupt shifts in the
VF anywhere in the article. And Dr. Corum's VF equation is close
enough to my rough earlier estimate of 0.15 to be acceptable.

> you'll see time delay is essentially flat except near the 16MHz
> self-resonant frequency and a higher-frequency resonance at 26 MHz.

But cos(kz)*cos(wt) is what is being measured. That signal has zero
phase shift from tip to tip in a 1/2WL thin-wire dipole. It cannot
be used to measure phase shift because it is incapable of a phase
shift through 180 degrees of wire or 180 degrees of coil. It only
changes phase every 180 degrees of a wire or coil.

What is happening in the above measurement is that when the coil
is more than 1/2WL, the phase of the standing wave current suddenly
reverses from close to zero to close to 180 degrees. This is all
explained in Kraus', "Antennas for All Applications", 3rd edition,
Figure 14-4 and is perfectly understandable. The phase of the standing
wave current changes from zero to 180 degrees every 1/2WL. I've seen
exactly the same thing in my experiments just as Kraus predicts and
it supports my side of the argument.

The standing wave current, which has unchanging phase, cannot be
used to determine the phase shift in a wire or coil. A
signal with a cos(kz)*cos(wt) equation doesn't change phase
with variations in 'z'. How can it possibly be used to detect
phase changes in the 'z' dimension?

--
73, Cecil http://www.qsl.net/w5dxp

2812. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 23:38:32 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121h9bpn0lge16@corp.supernews.com>
Source record: 63123

Richard Harrison wrote:
> Cecil, W5DXP wrote:
> "How is it possible to use a signal (standing wave current) that is
> known not to change phase, to measure the phase delay through a wire or
> coil?"
>
> Ignore it.
>
> Lissajous figures result from applying signals to the vertical and
> horizontal deflection circuits of an oscilloscope simultaneously. Phase
> difference between signals of the same frequency make a distinctive
> pattern.
>
> One can use coax lines with identical delays to couple the inputs with
> phase sampling loops. Take samples of the currents at the two points
> where the phase difference would be known. Amplitudes can be adjusted
> for a suitable pattern. It will be destinctive.
>
> Then take samples from the same source. Add a known delay to one channel
> until you have reproduced the distinctive pattern you had observed when
> testing the felay between the points that have the unknown phase
> difference.
>
> With a few elaborations, that`s how a phase monitor works.

Many analog scopes aren't capable of producing a meaningful Lissajous figure at HF because of the limited bandwidth of the horizontal channel. Significant phase delays occur at frequencies well below the nominal cutoff frequency, which is often much lower than the vertical channel. Before believing in the validity of any figure, you should look at the figure you get when you apply the signal to both axes at the same time. If it deviates significantly from a single diagonal line, you won't be able to trust other patterns.

It would be a simple matter for a digital scope to present a good Lissajous figure, since the bandwidth is determined solely by the input samplers rather than a series of amplifiers and the CRT deflection structure as in an analog scope. I haven't looked closely at digital scopes lately, but I'd be surprised if most don't have the capability of making a good Lissajous figure at HF. It would be simply a matter of internal firmware programming.

Of course, a dedicated phase monitor would be designed for good phase and amplitude match between channels at the frequencies it's specified to be used at.

Roy Lewallen, W7EL

2813. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-15 23:40:26 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <KB1Sf.1511$tN3.453@newssvr27.news.prodigy.net>
Source record: 63124

Cecil Moore wrote:
> Richard Clark wrote:
>
>> Provide the Velocity Factor and Characteristic Impedance per the
>> formulas you offered:
>
>
> Tom Donaly has graciously volunteered to provide those values.
> Please stand by.

Actually, I just wanted to calculate the values for my own personal edification. You'll have to do the arithmetic yourself, Cecil, and then it won't mean much, because, as far as I know, no one has ever done any experimental work to see if these equations have any meaning. If a coil can slow down an electromagnetic wave as much as these equations say it can, though, it qualifies as a very interesting device.
73
Tom Donaly, KA6RUH

2814. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:00:04 UTC
From: Roger <Delete-Invallid.stuff.groups@tm.net>
Message-ID: <e79h12tffpp6rno5isaladotncj3o20btu@4ax.com>
Source record: 63125

On Mon, 13 Mar 2006 23:14:29 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>The advice to avoid acetic-acid smelling RTV because of corrosion is
>passed along from person to person like an urban legend, but like an
>urban legend it's just about impossible to find anyone who's actually
>seen any corrosion result from its use. (A number of queries I've made
>over the years has produced just one, using a very early version of RTV.)

OK, here is number 2. Hmmm wait... couldn't we use a different
ranking...

I retired from the industry and I worked for the original developer of
"Silastic RTV (TM)". My address if Midland MI if any one needs another
hint.

Yes there is an weak acid released from the regular RTVs and it
depends on the moisture in the air to aid in curing.

Is it, or will it be a problem? That is a Yes and no, or it all
depends answer.
I use plain old fashion "bathtub calk" on my antenna connections and
connectors *outside or outdoors*

The acid is not normally a problem *except* where the item is either
potted, or enclosed in a container. I would not use it on PC boards
where the foil is thin.

Outdoors I just "gob it on".

As to real corrosion:
Some years back we purchased a bunch of remote sensors that were
potted in metal boxes for use in harsh environments. They worked very
well... for about a year. One failed and who ever removed it brought
it into the shop. I decided to perform an autopsy on it. I cut the
seal, pried off the cover, and dug out the circuit board, or rather
what was left of it. The copper traces were mainly a green powder
with bigger chunks of powder around the solder joints where the wires
hung loosely.

The manufacturer of the sensors had used the wrong potting compound.
Had they used the neutral stuff (really stinks) they would have been
fine. They replace them all, they were expensive, and we had a bunch.

>
>I've used the acetic-acid smelling stuff for decades on a variety of
>metals including tinned and untinned wire, aluminum, nickel, and copper

>circuit boards, and never seen a hint of corrosion. But formulations
>vary widely, and my experience certainly isn't exhaustive. I'm not

There are two main producers of RTVs and the formulations are pretty
much standard. If you analyzed a tube of the stuff I doubt you could
tell which manufacturer produced it. However they have slightly
different formulations aimed at the specific use. What every you
purchase under what ever brand name most likely comes from one of
these two producers unless it says Made in China.

>entirely convinced, though, that among the many formulations there
>aren't others, which don't have that smell, which might be corrosive to
>some materials.

>
>People who worry about this should buy an industrial product and stay
>with it, since there's a much better chance the formulation won't change
>in the future without notice.

The last I knew the only difference was in the packaging.

Roger Halstead (K8RI & ARRL life member)
(N833R, S# CD-2 Worlds oldest Debonair)
www.rogerhalstead.com
>
>Roy Lewallen, W7EL

2815. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:09:07 UTC
From: Roger <Delete-Invallid.stuff.groups@tm.net>
Message-ID: <qnah12ljqemhseft6aggm10uu8rsf24e70@4ax.com>
Source record: 62926

On Tue, 14 Mar 2006 19:04:48 +0000, Ian White GM3SEK
<gm3sek@ifwtech.co.uk> wrote:

>Mike wrote:
>>Roy Lewallen wrote:
>>> The advice to avoid acetic-acid smelling RTV because of corrosion is
>>>passed along from person to person like an urban legend, but like an
>>>urban legend it's just about impossible to find anyone who's actually
>>>seen any corrosion result from its use. (A number of queries I've made
>>>over the years has produced just one, using a very early version of RTV.)
>>> I've used the acetic-acid smelling stuff for decades on a variety of
>>>metals including tinned and untinned wire, aluminum, nickel, and
>>>copper circuit boards, and never seen a hint of corrosion. But
>>>formulations vary widely, and my experience certainly isn't
>>>exhaustive. I'm not entirely convinced, though, that among the many
>>>formulations there aren't others, which don't have that smell, which
>>>might be corrosive to some materials.
>>> People who worry about this should buy an industrial product and
>>>stay with it, since there's a much better chance the formulation
>>>won't change in the future without notice.
>>> Roy Lewallen, W7EL
>
>>I was visiting a local SGC dealer years ago as he was troubleshooting a
>>brand new antenna tuner that was not working. When he opened the
>>plastic case, that special RTV acidic smell almost knocked us over and
>>all the tinned circuit board traces and exposed wiring were corroded
>>and black. SGC claimed they used the wrong type of RTV on a batch of
>>tuners that was not for electronics use.
>
>Most likely because they closed the cases before the silicone had cured,

That outgasing from a think layer will go on for many days which would
make it impractical to use in this case.

>not realising they were trapping the acetic acid vapour inside. The same
>can happen in balun boxes and the like.
>
In this case it would also depend on how much RTV, or how thick the
layer of RTV. As I said, the outgasing will go on for quite some time
and the thicker the longer it outgases. I'd not use the acid smelling
version from either producer on PC boards.

>It would be interesting to know if there have been *any* cases that
>didn't also involve some kind of closed situation, or possibly a layer
>that was too thick to let the vapour diffuse out.

A thin layer should cause no problem if it is given time to outgas,
but a thick layer will most likely eventually ruin the PC board.

Roger Halstead (K8RI & ARRL life member)
(N833R, S♯ CD-2 Worlds oldest Debonair)
www.rogerhalstead.com

2816. Re: Element correction for through beem Yagi elements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:16:37 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <7ibh12pca2rcebkkt1904dult2nvin0vqo@4ax.com>
Source record: 62927

On Wed, 15 Mar 2006 22:17:03 GMT, David <dhuisman@bigpond.net.au>
wrote:

>Hi,
>
>I am in the process of building a 4-Element Yagi to operate at 915 MHz.
>
>The design is as follows...
>Element Length Distance from REFL
>REFL 159mm 0mm
>DE 146mm 40mm
>D1 139mm 90mm
>D2 132mm 155mm
>
>Boom is 12.8mm OD square aluminium (1.6mm wall thickness)
>Elements are 6mm solid aluminium rod.
>
>The design was assuming that the elements were to be insulated from the
>boom but I am having trouble making small insulators to hold these in
>place.
>It would be simpler for construction if I could simply drill through the
>beam and weld the rods in place or connect via a screw through the
>centre of the beam.
>
>The correction factor formula I have found seems to be for insulated
>through-beam elements.
>
>Q: Is there a correction factor I can apply to enable me to construct
>the antenna in this manner ?
>
>Q: Does the Driven element need to be in the same plane as the other
>elements or can it be out of alignment (ie. If I use a small plastic
>enclosure to house the balun and make connection to the driven elements,
>the elements will not be in the middle of the beam but rather 5mm or so
>above the beam).
>
>Q: Is there an alternate design I could use that would be simpler to
>construct. (I am looking for around 7dB gain at low angle of radiation -
>point to point communications link). Feedline is 50 Ohm coaxial cable,
>power is less than 1 Watt.
>
>Hope I have given enough info to evoke some constructive advice, Thanks
>in advance for your help

Take a look at Ian's site:

http://www.ifwtech.co.uk/g3sek/diy-yagi/index.htm#BoomCorr

2817. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:36:51 UTC
From: w8ji@akorn.net
Message-ID: <1142469410.984882.184550@i40g2000cwc.googlegroups.com>
Source record: 62928

Tom Donaly wrote:
> If a coil can slow down an electromagnetic wave as much as these
> equations say it can, though, it qualifies as a very interesting device.

Tom,

Here's another way to think about it.

If an inductor by itself delayed phase as much as Cecil claims, we could build a phase or time delay system with only a large inductor. As it is, we must always use a network of capacitors and inductors to obtain phase delays or a transmission line of any substantial delay.

To construct a delay line, either a small parallel wire line is used or a spiral around a metal core. The metal core acts like a shorted turn and reduces flux coupling, and adds distributed capacitance to ground.

73 Tom

2818. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:46:03 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <a0dh12hs40evf2lidefqrie29euvrcvr1t@4ax.com>
Source record: 62929

On 15 Mar 2006 16:36:51 -0800, w8ji@akorn.net wrote:

>If an inductor by itself delayed phase as much as Cecil claims, we
>could build a phase or time delay system with only a large inductor.

There is another explanation.

A lumped circuit has only one resonance. A transmission line has an infinite number. It certainly isn't necessary to impose a strict test of this. Finding second, third, and fourth harmonics for an inductor, in situ, would certainly be compelling evidence of transmission line behavior. Otherwise, any delay obtained through pencil whipping the various formulas (and Reggie's equations veer far from the references offered) is strictly what occurs AT RESONANCE, and any interpolation of that delay to other frequencies is a presumption not yet proven.

73's
Richard Clark, KB7QHC

2819. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:52:50 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <sbdh121b04ricj0v91v3ccgsldgbfphp58@4ax.com>
Source record: 62930

On Wed, 15 Mar 2006 15:38:32 -0800, Roy Lewallen <w7el@eznec.com>
wrote:
>Many analog scopes aren't capable of producing a meaningful Lissajous
>figure at HF because of the limited bandwidth of the horizontal channel.

This is certainly true for poor scopes. If we are limited to HF, then
those with bandwidths above 100MHz might squeak by. However, there
are alternatives that were part and parcel to many older scopes: you
simply drive the plates directly like they did in the old days (1930s)
before the plates were driven by dedicated amplifier chains.

I have calibrated such old (very old) scopes that operated well out
into the 100s of MHz, but were often accompanied by a necessary
accessory, a microscope.

73's
Richard Clark, KB7QHC

2820. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 00:59:51 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jqdh12hejc9eu0sbv17o638s55rma5vkf7@4ax.com>
Source record: 62931

On Wed, 15 Mar 2006 22:42:55 GMT, Cecil Moore <mycall@arrl.net> wrote:
>The VF of my 75m bugcatcher coil calculates out to be
>VF = 0.0175 at 6.6 MHz

>On Fri, 10 Mar 2006 13:35:14 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>I'm willing to bet that my 75m
>>bugcatcher coil has at least a 40 nanosecond delay on 4 MHz
>>which is a 60 degree current phase shift.

>On Wed, 15 Mar 2006 18:03:28 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>The coil data is: ~6" dia, ~6.7" long, 26.5 T, seems
>>very close to 4 TPI. Looks to be #14 solid wire.

Total turns 26.5
Through total turns, total wire appears to be 505"

With nothing offered in the way of inductance, from calculations it
appears to be 72.9 ï¿½H

With nothing offered in the way of distributed capacitance, from
calculations it appears to be 8pF

On Tue, 14 Mar 2006 04:09:08 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:
>V = 1 / Sqrt(L * C) metres per second,
>where L and C are henrys and farads per metre respectively. The
>formula for L and C can be found in your Bibles from coil dimensions,
>numbers of turns, etc.

V = 1 / Sqrt (5.88 * 72.9* 10^-6 * 8 * 10^-12) meters per second

where the 5.88 is to correct for per meter computations

it follows that V must then be 17.1 million meters per second

>
>The velocity factor = V / c
Vf = 0.057
>and Zo = Sqr(L / C).
Zo = Sqrt (72.9* 10^-6 / 8 * 10^-12)

3 KOhms

It appears your reference source leads you to an answer that is off by
325%

OR

Reggies' hints of a solution are in error

OR

I've pencil whipped this to death due to the tedious collection of data spread through 300 postings and the chain of computation. I will leave that to other, less lazy individuals to ponder.

OR

This is simply proof of an exercise in futility through the misapplication of the theory of transmission lines to lumped components.

It is quite apparent something's broke, but if the correspondence descends into theory, it will be that theory is broke. There's enough quantifiables to come to terms with before any theory is proven.

2821. Re: Balun Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 01:19:55 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <4418bd3c$0$7332$39cecf19@news.twtelecom.net>
Source record: 62932

Roy Lewallen wrote:

> This test works only with a current balun. If done with a voltage balun,
> the impedance should be very low.
>
> Although there are ways to test for the proper functioning of a voltage
> balun, that is, to test for the voltages at the output terminals being
> equal and opposite with respect to the "cold" side of the input, they
> don't tell you how effective it'll be in stopping common mode currents
> on feedlines. In fact, certain imperfections might improve the
> performance of a voltage balun in that application. I don't recommend
> using a voltage balun for feeding antennas for the reasons I gave in
> http://eznec.com/Amateur/Articles/Baluns.pdf.
>
> I apologize for the error. Thanks very much to Owen Duffy for pointing
> it out to me.
>
> Roy Lewallen, W7EL

Thanks for the replies, Roy. They were pretty much what I suspected,
but hearing it from you is a nice confirmation. Why don't you make a
small white paper on your site covering this subject?

As usual, I didn't get my original post, and none of the replies, except
for this one. It's nice to have google to pick up what my newsfeed misses.

tom
K0TAR

2822. To ground or not to ground

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 02:02:46 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <aH3Sf.7710$dy4.358@news-server.bigpond.net.au>
Source record: 62933

Hi,

I followed the links provided by some of you for correction factor calculation and managed to find a folded dipole design that accounts for elements through the boom that are connected to it electrically.

I found from another link a construction method for the folded radiator and balun match. The design shows the shield of coax feedline and balun being connected to the boom but the elements in that second design are isolated from the boom.

Q: Can I still ground the coax to the boom if the elements are also attached to the boom ?

Thanks

Regards

David

2823. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 02:12:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121hibknuqlgqb6@corp.supernews.com>
Source record: 62934

Richard Clark wrote:
> On Wed, 15 Mar 2006 15:38:32 -0800, Roy Lewallen <w7el@eznec.com>
> wrote:
>> Many analog scopes aren't capable of producing a meaningful Lissajous
>> figure at HF because of the limited bandwidth of the horizontal channel.
>
> This is certainly true for poor scopes. If we are limited to HF, then
> those with bandwidths above 100MHz might squeak by. . .

Either you missed my point, or we differ on what constitutes a "poor"
scope. The Tektronix 465, for example, is a 100 MHz scope. Although it's
very long in the tooth now, it's not a "poor" scope by most measures.
But the specifications for X-Y display are as follows:

------

5 mV/div to 5 V/div, accurate ï¿½ 4%. Bandwidth is dc to at least 4 MHz.
Phase difference between amplifiers is 3ï¿½ or less from dc to 50 kHz.

This wouldn't produce a meaningful Lissajous figure at HF.

Roy Lewallen, W7EL

2824. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 02:19:21 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121hip9t8og871b@corp.supernews.com>
Source record: 62935

Richard Clark wrote:
> On Wed, 15 Mar 2006 22:42:55 GMT, Cecil Moore <mycall@arrl.net> wrote:
>> The VF of my 75m bugcatcher coil calculates out to be
>> VF = 0.0175 at 6.6 MHz
>
>> On Fri, 10 Mar 2006 13:35:14 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>
>>> I'm willing to bet that my 75m
>>> bugcatcher coil has at least a 40 nanosecond delay on 4 MHz
>>> which is a 60 degree current phase shift.
>
>> On Wed, 15 Mar 2006 18:03:28 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>
>>> The coil data is: ~6" dia, ~6.7" long, 26.5 T, seems
>>> very close to 4 TPI. Looks to be #14 solid wire.
>
> Total turns 26.5
> Through total turns, total wire appears to be 505"
>
> With nothing offered in the way of inductance, from calculations it
> appears to be 72.9 ï¿½H
>
> With nothing offered in the way of distributed capacitance, from
> calculations it appears to be 8pF
>
> On Tue, 14 Mar 2006 04:09:08 +0000 (UTC), "Reg Edwards"
> <g4fgq.regp@ZZZbtinternet.com> wrote:
>> V = 1 / Sqrt(L * C) metres per second,
>> where L and C are henrys and farads per metre respectively. The
>> formula for L and C can be found in your Bibles from coil dimensions,
>> numbers of turns, etc.
>
> V = 1 / Sqrt (5.88 * 72.9* 10^-6 * 8 * 10^-12) meters per second
>
> where the 5.88 is to correct for per meter computations
>
> it follows that V must then be 17.1 million meters per second
>
>> The velocity factor = V / c
> Vf = 0.057
>> and Zo = Sqr(L / C).
> Zo = Sqrt (72.9* 10^-6 / 8 * 10^-12)
>
> 3 KOhms

> . . .

This is a misapplication of transmission line formulas. The "C" in those formulas is the shunt capacitance per unit length between the conductors, not a series or longitudinal capacitance as used here. In order to use the transmission line formulas, you have to have a second conductor and determine the C per unit length between the two conductors. Otherwise, you (or Cecil) have to come up with some other equations. Some of the more picky of us readers will of course then ask for the source and/or derivation of those other equations.

Roy Lewallen, W7EL

2825. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 02:40:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%e4Sf.1270$4L1.473@newssvr11.news.prodigy.com>
Source record: 62936

Tom Donaly wrote:
> Actually, I just wanted to calculate the values for my own personal
> edification. You'll have to do the arithmetic yourself, Cecil, and
> then it won't mean much, because, as far as I know, no one has ever
> done any experimental work to see if these equations have any meaning.

There are references for it in the Dr. Corum IEEE paper.
Kandoian and Sichak, "Wide Frequency Range Tuned Helical
Antennas and Circuits," Electrical Communications, Vol 30,
1953, pp. 294-299. It was published while I was in high
school.

> If a coil can slow down an electromagnetic wave as much as these
> equations say it can, though, it qualifies as a very interesting device.

I studied such 50 years ago at Texas A&M from papers
such as the above. The parameters for a transmission line
or a coil are the same just with different values.
--
73, Cecil http://www.qsl.net/w5dxp

2826. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 02:49:18 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Om4Sf.1273$4L1.28@newssvr11.news.prodigy.com>
Source record: 62937

w8ji@akorn.net wrote:
> If an inductor by itself delayed phase as much as Cecil claims, we
> could build a phase or time delay system with only a large inductor.

We can build a time delay system with only a large inductor.
That's what large inductors do. How does a large inductor
cause a large arc on a Smith Chart without shifting the phase
of the signal?

One cannot use the presuppositions of the lumped-circuit
model to prove that there is no time delay through a
coil. The lumped-circuit presupposes zero time delay
through a coil with propagation times exceeding the
speed of light.
--
73, Cecil http://www.qsl.net/w5dxp

2827. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 03:20:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <aQ4Sf.1279$4L1.890@newssvr11.news.prodigy.com>
Source record: 62938

Richard Clark wrote:
> A lumped circuit has only one resonance. A transmission line has an
> infinite number. It certainly isn't necessary to impose a strict test
> of this. Finding second, third, and fourth harmonics for an inductor,
> in situ, would certainly be compelling evidence of transmission line
> behavior.

Using the same coil stock as W8JI's 100uH coil, I just set up
a 50 uH coil on a mag mount sitting on my metal desk. Its
first solid resonance was 9 MHz (1/4WL), its second solid
resonance was 27 MHz (3/4WL), and its third solid resonance
was 45 MHz (5/4WL). In addition to those, there other soft
spots and double dips along the frequency line.

W8JI reported something happening at 24 MHz as well as self-
resonance at 16 MHz. He was apparently not testing it over
a ground plane like an automobile body. That automobile
ground plane drops the VF much lower than an isolated
coil's VF.
--
73, Cecil http://www.qsl.net/w5dxp

2828. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 03:30:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <wZ4Sf.1281$4L1.682@newssvr11.news.prodigy.com>
Source record: 62939

Richard Clark wrote:
> This is simply proof of an exercise in futility through the
> misapplication of the theory of transmission lines to lumped
> components.

One certainly has to be careful. But Dr. Corum's formulas
matched my measurements closer than I expected.

One thing is for sure. One cannot use the presuppositions
of the lumped-circuit model to prove the validity of the
lumped-circuit model and that is what has happened so
far. One also cannot use a signal with unchanging phase
to measure the phase shift through a wire or coil.
--
73, Cecil http://www.qsl.net/w5dxp

2829. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 03:51:05 UTC
From: richardharrison@webtv.net
Message-ID: <9127-4418E0A9-1415@storefull-3253.bay.webtv.net>
Source record: 62940

Tom, W8JI wrote:
"If an inductor by itself delayed phase as much as Cecil claims, we could build a phase or time delay system with only a large inductor."

Recall that another name for the inductor is a "retardation coil", and that the time constant of an inductor having an L in henrys and a resistance in ohms is equal to L/R.

Best regards, Richard Harrison, KB5WZI

2830. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 04:20:23 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121hps7rrj1ee9e@corp.supernews.com>
Source record: 62941

Richard Harrison wrote:
> Tom, W8JI wrote:
> "If an inductor by itself delayed phase as much as Cecil claims, we
> could build a phase or time delay system with only a large inductor."
>
> Recall that another name for the inductor is a "retardation coil", and
> that the time constant of an inductor having an L in henrys and a
> resistance in ohms is equal to L/R.

Yes, it's been known for over a century that the phase of the current through an inductor lags the voltage across it, resulting in retardation of the current relative to the voltage. And the time constant you refer to is of course the time constant of the rise or decay of the current through an inductor to which a voltage step is applied.

I don't see the connection between these and the contention that the current into and out of an inductor are unequal. If there is one, perhaps you can explain it. My texts all show a single equation relating the voltage across an inductor to the current through it, as follows:

v = L * di/dt

This holds at all frequencies, i.e., all rates of change of current, and it's from this that the above mentioned characteristics follow. If the currents at the two inductor terminals are to be different, we'll need two equations, one for the input current and one for the output current. That is, v = f1(di1/dt) and v = f2(di2/dt), where f1 and f2 are different functions. Have you come across such a set of equations in your searches through your textbooks, or are the authors unaware of Cecil's theories?

Roy Lewallen, W7EL

2831. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 04:45:31 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <o16Sf.1172$123.370@fed1read09>
Source record: 62942

"Roger" <Delete-Invallid.stuff.groups@tm.net> wrote in message
news:qnah12ljqemhseft6aggm10uu8rsf24e70@4ax.com...
> On Tue, 14 Mar 2006 19:04:48 +0000, Ian White GM3SEK
> <gm3sek@ifwtech.co.uk> wrote:
>
> >Mike wrote:
> >>Roy Lewallen wrote:
> >>> The advice to avoid acetic-acid smelling RTV because of corrosion is
> >>>passed along from person to person like an urban legend, but like an
> >>>urban legend it's just about impossible to find anyone who's actually
> >>>seen any corrosion result from its use.

US Navy, fighting corrosion since the Year 1, banned the use of most kinds of silicone sealers and "RTV" in weatherproofing of topside connectors about 20 years ago. It was seen as a boon when it came out and was used extensively, both in the non-hardening varieties as a filler and in the rubberizing kinds as an outer coating. Too bad that many types proved to cause sufficient corrosion to be more of a problem than a solution! Since then, the Navy has gone through Skotchkote and into Pro-seal and other chemicals whose names I forget. Mechanically, we're getting into some exotic Gel-in-the-Middle connector sleeves. (We not only fight on the sea -- we have to fight the sea, itself.)

I will see what I can dig out of the files to document this. Keep your fingers crossed, as the archives shrink a little every year and the data might be gone.

John

2832. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 04:54:21 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <1c6Sf.1309$4L1.44@newssvr11.news.prodigy.com>
Source record: 62943

Roy Lewallen wrote:
> Have you come across such a set of equations in
> your searches through your textbooks, or are the authors unaware of
> Cecil's theories?

I can't take credit for them, Roy, since I studied them at Texas A&M in the 50's. Much of it appears in Ramo and Whinnery's "Fields and Waves" and Johnson's "Transmission Lines and Networks". They are just the rules of the distributed network model of which the lumped-circuit model is a subset. In any situation where the lumped-circuit model yields different results than the distributed-network model, the lumped-circuit model is wrong.

The lumped-circuit model presupposes the conclusions that some people are presenting as fact. Obviously, the lumped-circuit cannot be presented as evidence of proof of its presuppositions. But it appears that is exactly what has happened. The lumped-circuit model presupposes faster than light propagation of signals. That alone should be enough to raise a red flag. Can someone prove faster than light speed by quoting the presuppositions of the lumped-circuit model?

Quoting Dr. Corum again: "Lumped circuit theory isn't absolute truth, it's only an analytical theory ... The engineer must either use Maxwell's equations or distributed elements to model reality."

My 75m bugcatcher meets his criteria for situations where his VF equations work. It yields a VF of 0.0175 for the bugcatcher coil. That VF works just like the 0.66 VF works for RG-213. On a coil physically like the W8JI test coil but with 50 uH inductance, I see coil resonances at 9 MHz, 27 MHz, and 45 MHz, just as if it were 1/4WL of transmission line. It appears that the calculated VF works over a wide frequency range.

To prove the presuppositions of the lumped-circuit model, a standing wave current is used to measure phase. We already know the phase of a standing wave current is unchanging all along a 1/2WL dipole, per Kraus, yet some people

keep using standing wave current with its unchanging
phase to try to measure phase shift as if it were a
valid thing to do. One cannot measure a phase shift
in 45 degrees of dipole using standing wave current.
Why is it surprising that one cannot measure a
phase shift in 45 degrees of coil? There's no
current phase shift from the top of the coil
to the tip of the antenna either.
--
73, Cecil http://www.qsl.net/w5dxp

2833. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:00:58 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ilmh12ptiqkb680s0flkrqh75j2j9u7j7r@4ax.com>
Source record: 62944

On Wed, 15 Mar 2006 18:19:21 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>This is a misapplication of transmission line formulas. The "C" in those
>formulas is the shunt capacitance per unit length between the
>conductors, not a series or longitudinal capacitance as used here. In
>order to use the transmission line formulas, you have to have a second
>conductor and determine the C per unit length between the two
>conductors. Otherwise, you (or Cecil) have to come up with some other
>equations. Some of the more picky of us readers will of course then ask
>for the source and/or derivation of those other equations.

Hi Roy,

Well, it (the misapplication) certainly is that. That no two numbers
agree to the same problem misses more compelling evidence that hardly
demands strict accuracy in results obtained from any formula.

In short, no "other" equations are going to prove what cannot be
generally demonstrated.

Barring startling results demonstrating how either of the two coils
offered here in evidence reveal multiple resonances, that is enough to
kill the thread without needing tedious computations.ï¿½

Another is the howler that this is all based upon the "coil's
characteristics," and Cecileo proved the Sun orbits the moon by
employing the bed of his truck in the exact solution.ï¿½ This is called
new-age math with an harmonic convergence. It was convenient of all
his reference sources to include this truck factor as a hidden
variable - accessible to only those who know the secret handshake.

Just kidding, of course.

In fact, the authors tread very lightly in the context of a ground,
mentioning it only once as a necessity for
"characterizing the impedance of a structure
at a pair of terminals" [your point]

When the speculation is that the coil presents a 1:1 replacement for
the delay of the "missing" segment of the resonant antenna, then this
premise stumbles at the starting blocks. If I shorten the whip, then
the shorthand of:
>On Tue, 14 Mar 2006 21:45:06 GMT, Cecil Moore <mycall@arrl.net> wrote:
>>The velocity factor can also be measured from the self-
>>resonant frequency at 1/4WL. VF = 0.25(1/f)
offers this promise:

Make a smaller inductance (reducing turns will do)
to present a higher self-resonant frequency.

VF will fall.

From this, the delay climbs
to replace the shortened whip's missing angular contribution.

The reductio-ad-absurdum is that we repeat the trimming of the whip
until the inductance disappears.ï¿½ Ironically this leaves us with a
very short mast that now resonates! If we closed our eyes really,
really hard, and wished for a coil with a very high self resonance, it
could replace the mast too.

I see new marketing possibilities for 80 and 160 Meters.

ï¿½ ï¿½ ï¿½ Let's see, without any deep computations I count three thread
busters here. Offering the same proviso of probable computation
errors committed here, I would point out that only one thread buster
need survive to present the obvious fate to this theory.

73's
Richard Clark, KB7QHC

2834. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:04:15 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <2ash12pn7hto7hh850f8bicaalip2mp812@4ax.com>
Source record: 62945

On Thu, 16 Mar 2006 03:30:36 GMT, Cecil Moore <mycall@arrl.net> wrote:
>One also cannot use a signal with unchanging phase
>to measure the phase shift through a wire or coil.
Ah, Zen poetry disguised as erudition. I can top that!
One cannot cook a one minute egg using a compass.

2835. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:06:18 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ehsh12ha4i25dn72i82hi6060msomop4gi@4ax.com>
Source record: 62946

On Thu, 16 Mar 2006 03:20:38 GMT, Cecil Moore <mycall@arrl.net> wrote:
>In addition to those, there other soft
>spots and double dips along the frequency line.
not a very good transmission line model then, is it?

2836. Where to purchase YO by Brian Beezley

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:08:47 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <zp6Sf.7810$dy4.4419@news-server.bigpond.net.au>
Source record: 62947

Would someone mind advising me where I can purchase this software from.
I found a email address for him but was returned as invalid when I
tried to contact him.

Thanks

Regards

David

2837. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:11:13 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <0osh12lmdqruqjbp9idttnm9mqatsstdlp@4ax.com>
Source record: 62948

On Thu, 16 Mar 2006 03:20:38 GMT, Cecil Moore <mycall@arrl.net> wrote:

> Its first solid resonance was 9 MHz (1/4WL), its second solid
>resonance was 27 MHz (3/4WL), and its third solid resonance
>was 45 MHz (5/4WL).

What are they when you raise the assembly (I distinctly note that this
is NOT the resonance of the COIL you are speaking of) two feet higher?

2838. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 05:35:25 UTC
From: richardharrison@webtv.net
Message-ID: <16559-4418F91D-1319@storefull-3256.bay.webtv.net>
Source record: 62949

Roy, W7EL wrote:
"I don`t see the connection between these and the contention that the current into and out of an inductor are unequal."

Nor do I. Tom was not making a case for inequality of current in and out of a coil either. He was just making an inaccurate statement.

Cecil has a good case. Straight wire and coiled wire have the same properties, only more or less of them. When they are in the path of a traveling wave and a reflection of that wave comes back from the opposite direction, they respond similarly. An interference pattern exists on the coil as it does on straight wire if the distance is comparable to a wavelength. Superpositon makes both volts and amps vary along the route.

So, indeed the current at one end of a coil in that situation can be different at from that at the other end, the same as it would along a wire.

Distributed network theory is newer than lumped network theory but both have been around plenty long enough to be well established. I don`t think Cecil is breaking any new ground.

Best regards, Richard Harrison, KB5WZI

2839. Re: Where to purchase YO by Brian Beezley

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 08:14:14 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121i7imlr9omt7a@corp.supernews.com>
Source record: 62950

For quite a long time, Brian would sell only by mail. But I heard recently from someone that he now won't sell his programs at all. I'd appreciate a correction or update if anyone has contrary or confirming information.

Roy Lewallen, W7EL

David wrote:
> Would someone mind advising me where I can purchase this software from.
> I found a email address for him but was returned as invalid when I
> tried to contact him.
>
> Thanks
>
> Regards
>
> David

2840. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 08:30:19 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121i8gsc9itsgaf@corp.supernews.com>
Source record: 62951

Richard Harrison wrote:
> Roy, W7EL wrote:
> "I don`t see the connection between these and the contention that the
> current into and out of an inductor are unequal."
>
> Nor do I. Tom was not making a case for inequality of current in and out
> of a coil either. He was just making an inaccurate statement.

What was the inaccurate statement he made? I've found Tom very willing to correct errors, so I'm sure he'll correct it if we point it out to him.

> Cecil has a good case. Straight wire and coiled wire have the same
> properties, only more or less of them. When they are in the path of a
> traveling wave and a reflection of that wave comes back from the
> opposite direction, they respond similarly. An interference pattern
> exists on the coil as it does on straight wire if the distance is
> comparable to a wavelength.

Which distance do you mean -- the length of the coil or the length of the wire?

Superpositon makes both volts and amps vary
> along the route.
>
> So, indeed the current at one end of a coil in that situation can be
> different at from that at the other end, the same as it would along a
> wire.

Yes, indeed. As I explained in several earlier postings, if you begin with a coil and slowly stretch it out, the current distribution will go from something resembling that of a lumped inductor (equal currents in and out) to that of a straight wire (sinusoidal distribution). So "a coil" can have any current distribution along that continuum, allowing us to "prove" just about anything we wish as long as we don't say what kind of coil we're talking about. In between the extremes, a third distribution can occur, as King described in his book: when the coil length is much less than a wavelength but the turns are loosely coupled, you get a current that's highest in the middle and lower at both ends. The disagreement regards the currents in what would qualify as a lumped inductor -- one with very good coupling between turns, coil length very short in terms of wavelength, and no significant coupling to other conductors, but regardless of the length of wire it's made of. For that case, it's been theoretically and demonstratively shown to be equal at both ends.

> Distributed network theory is newer than lumped network theory but both
> have been around plenty long enough to be well established. I don`t
> think Cecil is breaking any new ground.

His conclusions are sure new and different, and unlike established
theory, his theories don't seem to be subject to equations which
describe them quantitatively.

Roy Lewallen, W7EL

2841. Re: Where to purchase YO by Brian Beezley

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 08:46:50 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <GdKmb5H6XSGEFArn@ifwtech.co.uk>
Source record: 62954

Roy Lewallen wrote:
>David wrote:
>> Would someone mind advising me where I can purchase this software
>>from. I found a email address for him but was returned as invalid
>>when I tried to contact him.
>> Thanks
>> Regards
>> David
>For quite a long time, Brian would sell only by mail. But I heard
>recently from someone that he now won't sell his programs at all. I'd
>appreciate a correction or update if anyone has contrary or confirming
>information.

More specifically, I believe he is no longer selling to amateurs.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2842. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 08:52:04 UTC
From: Arie <4nec2@gmx.net>
Message-ID: <1142499124.542709.89620@e56g2000cwe.googlegroups.com>
Source record: 62952

> Hi Bob, you are probably right about the different software standards. The
> NEC-2 Users Manual, p8, first paragraph, states: "Delta/a must be > 'about'
> 8 for errors < 1%". I guess the developers of 4nec2 considered the error
> for Delta/a > 6 to be acceptable.

Yes, and now I am wondering where I got this value of 6 instead of 8...

However when delta/a (len/radius) < 6 a warning is generated, when
delta/a < 2 an error is generated. When using more thick wires, you can
add the EK card. With this more high delte/a values are possible.
(warning if delta/a < 2, error if delta/a < 0.5).

Greetings from the 'developer',

Arie.

p.s. I can also recommend www.cebik.com

2843. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 08:56:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <TK9Sf.56920$Jd.10592@newssvr25.news.prodigy.net>
Source record: 62953

Richard Clark wrote:
> Barring startling results demonstrating how either of the two coils
> offered here in evidence reveal multiple resonances, that is enough to
> kill the thread without needing tedious computations.ï¿½

Last night I posted 1/4WL, 3/4WL, and 5/4WL measured resonant
points using the same coil stock as W8JI but with a shorter
50 uH coil. This coil 2" dia, 8 tpi, 8.5" long. It was
sitting on a mag mount on my metal desk.

> When the speculation is that the coil presents a 1:1 replacement for
> the delay of the "missing" segment of the resonant antenna, then this
> premise stumbles at the starting blocks.

Nobody said anything about a 1:1 replacement. That was just
somebody's strawman.
--
73, Cecil http://www.qsl.net/w5dxp

2844. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 09:08:37 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pW9Sf.56921$Jd.50203@newssvr25.news.prodigy.net>
Source record: 62955

Richard Clark wrote:
> What are they when you raise the assembly (I distinctly note that this
> is NOT the resonance of the COIL you are speaking of) two feet higher?

Isolating the magmount would be disconnecting the
ground plane from a 1/4WL antenna and would contribute
nothing of value to the discussion.
--
73, Cecil http://www.qsl.net/w5dxp

2845. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 09:24:16 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <I+0ezGLA7SGEFAsv@ifwtech.co.uk>
Source record: 62957

Roger wrote:
>>>I was visiting a local SGC dealer years ago as he was troubleshooting a
>>>brand new antenna tuner that was not working. When he opened the
>>>plastic case, that special RTV acidic smell almost knocked us over and
>>>all the tinned circuit board traces and exposed wiring were corroded
>>>and black. SGC claimed they used the wrong type of RTV on a batch of
>>>tuners that was not for electronics use.
>>
>>Most likely because they closed the cases before the silicone had cured,
>
>That outgasing from a think layer will go on for many days which would
>make it impractical to use in this case.
>
>>not realising they were trapping the acetic acid vapour inside. The same
>>can happen in balun boxes and the like.
>>
>In this case it would also depend on how much RTV, or how thick the
>layer of RTV. As I said, the outgasing will go on for quite some time
>and the thicker the longer it outgases. I'd not use the acid smelling
>version from either producer on PC boards.
>
>>It would be interesting to know if there have been *any* cases that
>>didn't also involve some kind of closed situation, or possibly a layer
>>that was too thick to let the vapour diffuse out.
>
>A thin layer should cause no problem if it is given time to outgas,
>but a thick layer will most likely eventually ruin the PC board.

Agreed; but that isn't really the fault of the silicone material. It's
more like "misuse".

But why do we use silicone for coax/antenna sealing anyway? Anything for
which you might use silicone could probably be done a lot better using
hot-melt glue.

Ordinary hot-melt glue (amorphous polypropylene) has good RF properties,
is non-corrosive, is very sticky, seals very well to metals and
plastics, is flexible, has no problems about being used in thick layers,
sets in minutes rather than hours, has at least as good weathering
properties as silicone, can be removed by cutting, peeling or melting,
and is very economical.

You can often use it in the backyard without electrical power, because a
typical glue gun gives up to 5 minutes working time after having been
unplugged.

There's more information in the archives of this group, thanks to Barry Ornitz, WA4VZQ.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2846. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 09:30:52 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <gfaSf.56923$Jd.32670@newssvr25.news.prodigy.net>
Source record: 62956

Richard Harrison wrote:
> Distributed network theory is newer than lumped network theory but both
> have been around plenty long enough to be well established.

Neumann didn't prove that the current through a coil is uniform.
He *assumed* it to be true as a simplification, so he could factor
out the current term from under the integral sign in one of Maxwell's
equations. Now Neumann's mathematical shortcut is being reported
here as a fact of physics. That's how well established it is.
--
73, Cecil http://www.qsl.net/w5dxp

2847. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 09:54:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <yBaSf.56924$Jd.24505@newssvr25.news.prodigy.net>
Source record: 62958

Roy Lewallen wrote:
> For that case, it's been theoretically and demonstratively shown to be
> equal at both ends.

Only one of the reported measurements showed the magnitudes of
the currents to be equal and that was a small toroidal coil
quite unlike a 75m bugcatcher coil. Wes's web page shows the
currents to be unequal at the ends of the coil. Figure 3 shows
1.03 amps at the bottom of the coil and 0.66 amps at the top
of the coil. That's not equal.

http://www.k6mhe.com/n7ws/Loaded%20antennas.htm

--

Here's an example from EZNEC where the currents are not
only unequal, but if one considers to standing wave current
to be flowing, more current is flowing into the bottom of
the coil than out the top. What does the lumped-circuit model
have to say about that? This technical question goes unanswered.

http://www.qsl.net/w5dxp/qrzgif35.gif

--

As for phase shift using standing wave current, consider the
following half of a dipole:

FP----------x----------y----------

'x' is at the 30 degree point and 'y' is at the 60 degree
point. What is the standing wave phase shift between point
'x' and point 'y'? We can see from Figure 14-4 in Kraus'
"Antennas for All Applications", 3rd edition, that the
measured phase shift would be zero between 'x' and 'y'.
So why is it a surprise that if the wire between 'x' and
'y' is replaced by a coil, the phase shift remains zero?
The measured phase shift in the wire and the coil are the
same. This technical question goes unanswered.
--
73, Cecil http://www.qsl.net/w5dxp

2848. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 10:07:29 UTC
From: w8ji@akorn.net
Message-ID: <1142503649.315716.97920@j52g2000cwj.googlegroups.com>
Source record: 62959

Cecil Moore wrote:
> Last night I posted 1/4WL, 3/4WL, and 5/4WL measured resonant
> points using the same coil stock as W8JI but with a shorter
> 50 uH coil. This coil 2" dia, 8 tpi, 8.5" long. It was
> sitting on a mag mount on my metal desk.

I think what we have here is Cecil has bought into the idea that radically different behavior on one or more self-resonant frequencies means we can apply an analogy of that behavior to all other frequencies.

Most of us probably want a theory that works all the time, and we probably think only one situation that proves the theory wrong is required to dismiss the theory as being incorrect.

What Cecil is asking us all to do is is agree to a theory that only works in special cases and ignore the times it does not.

73 Tom

2849. Re: Good coax for WiFi (2.4 & 5 ghz)?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 10:42:58 UTC
From: "news.viawest.net" <me@me.com>
Message-ID: <84cfe$44194129$404ee032$27637@VIAWEST.NET>
Source record: 62960

hmmmm,

Someone does not know how to read. No where in his post did he stated that
he was going to hack the computer system. haha. He did state that he would
hack a USB device. Besides, the true definition of wardrivers are only out
to log and collect information from the wireless access points (WAPs) they
find while driving. The legality of wardriving in the United States is not
clearly defined. There has never been any conviction for wardriving, and
there is the untested argument that the 802.11 and DHCP protocols operate on
behalf of the owner giving consent to use the network, but not if the user
has other reason to know that there is no consent.
"Bob" <warthog9@pacbell.net> wrote in message
news:s_NRf.54029$H71.36157@newssvr13.news.prodigy.com...
> Did you know the USSS investigates many types of computer fraud and
> hacking? Do you think it's wise to state your intent to maliciously invade
> other peoples computer systems and mention a traceable Ebay purchase of
> the goods to do so?
> USB type adaptors generally do not work with the popular freeware that you
> wanna be hackers use to commit your heinous crimes.
> Belden RG-174 has about .6dB loss/ft @ 5.6GHz. Your 15ft chunk would have
> about 9dB loss, not too impressive.
> Bob
>
>
> KG0WX wrote:
>> Well, I'm not just building *any* WiFi setup - I researched a bit and
>> found
>> on eBay what is generally agreed on to be one of the top 5 internal
>> 802.11
>> cards. With up to 250mw output and external antenna, I plan on diving
>> into
>> a new hobby - wardriving.
>>
>> I could just buy a USB WiFi adapter and crack open the case and hack it
>> with an external antenna but from what I've seen, both the low output
>> and
>> poor rx sensitivity seem to be quite common with these devices and that
>> is not what I want.
>>
>> I did remember a bookmarked site which calculated the info I needed.
>> Turns
>> out that my coax in question will have about 1.7 db loss at 5ghz. Not
>> too bad.

>>
>> Still, if anyone knows of a coax that is better than RG174 while being
>> about
>> the same size, please chime in with your comments!
>>
>> Ken KG0WX
>>

2850. ham ruhmours?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 12:00:32 UTC
From: ml <m@di.net>
Message-ID: <m-389C62.07002816032006@news.verizon.net>
Source record: 62961

does anyone know a good web site listing perhaps some soon to be
announced 'new' ham rigs?

dayton is just around the corner and was hoping to get a heads up on
any skuttlebut

tnx

2851. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 12:12:23 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HCcSf.60877$dW3.7410@newssvr21.news.prodigy.com>
Source record: 62962

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>>Last night I posted 1/4WL, 3/4WL, and 5/4WL measured resonant
>>points using the same coil stock as W8JI but with a shorter
>>50 uH coil. This coil 2" dia, 8 tpi, 8.5" long. It was
>>sitting on a mag mount on my metal desk.
>
> I think what we have here is Cecil has bought into the idea that
> radically different behavior on one or more self-resonant frequencies
> means we can apply an analogy of that behavior to all other
> frequencies.

False. Nobody has said anything about "all other frequencies".
The distributed network model covers a wider range of frequencies
than does the lumped-circuit model. At some frequency below self-
resonance in coils the lumped-circuit model fails. One must know
when to switch over to the distributed network model or one makes
mistakes of the kind that have been posted here. Dr. Corum suggests
switching over at a frequency 15% of the self-resonant frequency.
I would say that percentage is too high. 54+j100 is not the same
as 50+j0. It is not even close.

> Most of us probably want a theory that works all the time, and we
> probably think only one situation that proves the theory wrong is
> required to dismiss the theory as being incorrect.

The lumped-circuit model fails under conditions where the
distributed-network model continues to work. The lumped-
circuit model fails most of the time when standing waves
are present. The problem here is that some think the
lumped-circuit model works all the time but they are
mistaken.

> What Cecil is asking us all to do is is agree to a theory that only
> works in special cases and ignore the times it does not.

The lumped-circuit model is the special case, a subset of
the distributed network model. The lumped-circuit model assumes
that current flows faster than the speed of light. The distributed
network model makes no such false presuppositons. The lumped
circuit model is a simplified subset of the distributed network
model. If there is any disagreement between the two models, the
distributed network model wins every time.

Here is a graphic generated with the help of EZNEC. It shows
the same bottom-loaded antenna at its resonant frequency of

5.89 MHz, double that frequency, and triple that frequency.
The current magnitudes and phases are shown at various points
on the antennas. These values match my measurements.

http://www.qsl.net/w5dxp/3freq.gif

I have asked many technical questions that remain unanswered.
Please answer these technical questions about that graphic:

1. At 5.89 MHz, how could the phase of the current be almost
constant? Why is the phase shift halfway up the whip virtually
identical to the phase shift at the top and bottom of the coil?

2. At 5.89 MHz, the phase shift is essentially zero from feedpoint
to tip. How can no phase shift through the coil be important when
there is no phase shift through the whip?

2. At 11.78 MHz, how could 0.1729 amps be flowing into the
bottom of the coil while 2.014 amps flows out of the top of
the coil? How could there be a 180 degree phase shift through
the coil? Why is the phase halfway up the whip the same as
the phase at the top of the coil?
--
73, Cecil http://www.qsl.net/w5dxp

2852. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 12:47:57 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <fubQHlU95VGEFAbA@ifwtech.co.uk>
Source record: 62964

Cecil Moore wrote:
>Richard Harrison wrote:
>> Distributed network theory is newer than lumped network theory but both
>> have been around plenty long enough to be well established.
>
>Neumann didn't prove that the current through a coil is uniform.
>He *assumed* it to be true as a simplification, so he could factor
>out the current term from under the integral sign in one of Maxwell's
>equations. Now Neumann's mathematical shortcut is being reported
>here as a fact of physics. That's how well established it is.

At the most basic level, Cecil does not understand what scientific theories are all about.

That was not a "shortcut" or approximation. It was a rigorous test for the limiting case where the coil has no other properties except pure inductance, so no electromagnetic radiation is taking place. In that limiting case, Maxwell's equations MUST join up with conventional circuit theory... and indeed they DO.

In that limiting case, the current at the two terminals of a pure inductance must be the same in both magnitude and phase. By "current" we mean the simple, straightforward movement of charge. If you count the electrons in and out at the two terminals, there can be no difference in either magnitude or phase because that would require electrons to be stored or lost from somewhere - which inductance cannot do. Kirchhoff's current law recognises the logic of this.

This is how inductance always works in every type of non-radiating circuit, both in theory and in real life.

When developing a new theory, it is normal, standard required practice to test it for simplified, limiting cases that we already understand. The new theory MUST work for all these test cases; it MUST connect seamlessly with everything we already know.

At his point, some heckler pipes up: "Ah, but what about Einstein?" Thank you, sir - the perfect example to prove my point! If Einstein's equations of relativity are tested for the limiting case where velocities are very low, they connect seamlessly into Newton's laws of motion. If they hadn't, Einstein would have thrown them out and gone back to think again.

Another point: antennas are the home territory of classical physics, where everything is consistent with everything else. Classical physics is plain physical reality, verified every day, a billion times over.

All of our validated knowledge joins together completely seamlessly - and that's how we test anything new. In the home territory of classical physics, reality is hard, sharp and clear. It allows no gaps and no excuses. "What don't fit, ain't true."

Trained scientists accept the discipline of that, and turn it into a useful tool. Engineers aren't always trained to think that way, but the best are of a mind to do it anyway. They're creating new ideas all the time, and the ones that "don't fit" or "don't make sense" are simply abandoned (sometimes they're abandoned before they even make it into fully conscious thought). One way or another, lots of ideas get thrown away; no big deal, it's just part of the process of *having* ideas.

So...

When Cecil's theory is tested for the simple limiting case of pure inductance, it MUST join up seamlessly with conventional circuit theory. If it requires anything that "don't fit", such as a phase shift in current through a pure inductance, or special kinds of "current" that are different from the simple, straightforward movement of charge (electrons), then the theory fails.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2853. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 13:10:25 UTC
From: w8ji@akorn.net
Message-ID: <1142514625.406329.65530@u72g2000cwu.googlegroups.com>
Source record: 62963

Cecil Moore wrote:
> > I think what we have here is Cecil has bought into the idea that
> > radically different behavior on one or more self-resonant frequencies
> > means we can apply an analogy of that behavior to all other
> > frequencies.
>
> False. Nobody has said anything about "all other frequencies".

OK. I'm not sure what you are trying to say. It sounds like we all know and agree a reasonable physial size lumped inductor with good flux coupling between ends and stray C to the outside world that is small compared to termination impedance works like a lumped inductor below self-resonance of the inductor. There is only a tiny transmission line effect and that effect has more to do with spatial size than conductor length.

So...

What are you trying to say? Can you give an example in you own words explaining what you are trying to say and why it is meaningful or useful to others?

Surely you can put it all into a few words.

73 Tom

2854. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 15:08:28 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <ocvi12p00gduknqjf1ph6teol604e13h8p@4ax.com>
Source record: 62965

On Mon, 13 Mar 2006 18:59:34 -0500, "Robert11" <rgsros@notme.com>
wrote:

>Hello:
>
>Is it safe to use the typical GE RTV silicones against a Polyethylene (PE)
>coax outer jacket ?
>
>I know the RTV's use some type of acid (acetic ?) to cure the stuff, and I
>was wondering if
>anyone might have any first hand experience if there is any kind of
>interaction with a coax outer jacket ?
>
>Thanks,
>Bob

Although Bob isn't asking about sealing connectors, this thread has
drifted that way.

If this is indeed his need, then I offer my method. I use
Plymouth-Bishop No. 122 rubber tape followed by an overwrap of a good
quality vinyl tape.

http://www.plymouthbishop.com/

If memory serves, I bought the 122 at Home Depot, although their web
site doesn't show that they carry it anymore. An electrical supply
house would likely be a source.

2855. Re: Digikey phishing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 15:25:09 UTC
From: sumukh001@gmail.com
Message-ID: <1142522709.288195.93340@i40g2000cwc.googlegroups.com>
Source record: 62966
Cross-posted to: alt.politics.usa.constitution.gun-rights,rec.radio.amateur.antenna,rec.radio.amateur.equipment,sci.electronics.cad, sci.electronics.components

This seems to be a typical phishing tactics.
Please check out following articles to know more about " How to stop phishing"

http://www.cheapest-computer-hardware-software.com/securybanks-phishing-trojans.html

http://www.cheapest-computer-hardware-software.com/phishing-stats.html

Check out how to report phishing.

http://www.cheapest-computer-hardware-software.com/Report-phishing.html

regards

2856. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 16:19:46 UTC
From: Frank's <frank599@nospam.telus.net>
Message-ID: <CegSf.294$me6.123@clgrps13>
Source record: 62967

"Arie" <4nec2@gmx.net> wrote in message
news:1142499124.542709.89620@e56g2000cwe.googlegroups.com...
>> Hi Bob, you are probably right about the different software standards.
>> The
>> NEC-2 Users Manual, p8, first paragraph, states: "Delta/a must be >
>> 'about'
>> 8 for errors < 1%". I guess the developers of 4nec2 considered the
>> error
>> for Delta/a > 6 to be acceptable.
>
> Yes, and now I am wondering where I got this value of 6 instead of 8...
>
> However when delta/a (len/radius) < 6 a warning is generated, when
> delta/a < 2 an error is generated. When using more thick wires, you can
> add the EK card. With this more high delte/a values are possible.
> (warning if delta/a < 2, error if delta/a < 0.5).
>
> Greetings from the 'developer',
>
> Arie.
>
> p.s. I can also recommend www.cebik.com

Not sure if "EK" will help much here since the "wire" diameter is >
lambda/100. Seems to be a borderline case for a wire grid model. It is
like building a 20m dipole from 10" diameter pipe.

Also noticed the pole touches the ground, which is not allowed in NEC2.
Don't understand why it does not produce a warning. Usually when I connect
a wire to a non-perfect ground the ground grid turns purple (NEC-Win Pro),
and I get crazy results, but not in this case. Not that this is relevant in
this model.

Frank

2857. Re: compact antenna for short range direction finding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:05:13 UTC
From: Snide <nospam@home.com>
Message-ID: <44199ace$0$1153$7a628cd7@news.club-internet.fr>
Source record: 62968

thank for that. have you more details about all that stuff ? plans,
schematics, links ?
I'm not an expert...

Denis

2858. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:09:40 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <fl6j12tuptsu2903ja9qvjcbqb6km2v44c@4ax.com>
Source record: 62969

On Thu, 09 Mar 2006 21:40:40 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:

>Your 100uH coil above exhibits 60 degrees of phase shift
>even for the voltage and that's 1/6 wavelength

On Thu, 16 Mar 2006 08:56:19 GMT, Cecil Moore <mycall@arrl.net> wrote:

>> When the speculation is that the coil presents a 1:1 replacement for
>> the delay of the "missing" segment of the resonant antenna, then this
>> premise stumbles at the starting blocks.
>
>Nobody said anything about a 1:1 replacement. That was just
>somebody's strawman.

We all know who "somebody" is. [threadbuster #4]

But if this is news to you, it must have been one of your other
personalities (Hokum's Razor?) at the keyboard who posted the message
at the top.

2859. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:12:59 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <gv6j12dn51fkrd6b5dlfvh1a704b4r6h6n@4ax.com>
Source record: 62970

On Thu, 16 Mar 2006 09:08:37 GMT, Cecil Moore <mycall@arrl.net> wrote:

>Richard Clark wrote:
>> What are they when you raise the assembly (I distinctly note that this
>> is NOT the resonance of the COIL you are speaking of) two feet higher?
>
>Isolating the magmount would be disconnecting the
>ground plane from a 1/4WL antenna and would contribute
>nothing of value to the discussion.

Certainly not for you, that is apparent. It would only more closely
conform to your reference material's isolated coils, and that would
jeopardize your "confirmations" n'est pas?

No matter, this thread has been put to bed anyway. It is coasting in
entertainment gear now.

2860. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:19:20 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <44199e18_1@newsfeed.slurp.net>
Source record: 62971

I've been following this mind-numbing discussion for days now and still don't have the answer to the original question:

Is the current the same at both ends of a mobile whip's loading coil?

Bill, W6WRT

2861. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:34:51 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%khSf.56996$Jd.29555@newssvr25.news.prodigy.net>
Source record: 62972

<w8ji@akorn.net> wrote:
> OK. I'm not sure what you are trying to say. It sounds like we all know
> and agree a reasonable physial size lumped inductor with good flux
> coupling between ends and stray C to the outside world that is small
> compared to termination impedance works like a lumped inductor below
> self-resonance of the inductor.

I absolutely agree about the characteristics of an inductor presupposed
by the lumped-circuit model. But one cannot use the presuppositions
of the model to prove the model is valid for all cases. The dissagreement
here is one of degree. I would have stated the assertion above, it behaves
"... like a lumped inductor *far* below self-resonance of the inductor." Dr.
Corum sets the "far below" range at 15 degrees or 1/6 the self-resonant
frequency.I previously showed that 15 degrees of 450 ohm transmission
line will change a load of 50+j0 into a load of 54+j100 ohms. That may
be accurate enough for Dr. Corum to start using the lumped-circuit model,
but not for me. I would be more inclined to set the limit at 5 degrees.

> What are you trying to say? Can you give an example in you own words
> explaining what you are trying to say and why it is meaningful or
> useful to others?

What I am trying to say can best be illustrated by an example task that
I need to perform. I have a 180 foot dipole that I need to shorten so I
am going to install loading coils. I want the length of the loaded antenna
to be 90 feet. I'm pretty naive at this, so I am just going to build the
coil
out of the wire I remove from the antenna. My neighboring ham friend
says that will work just fine. And in the process of reducing the size of
my antenna, I want to learn something about antennas so I have borrowed
two toroidal current pickups to measure the current.

Note that at the frequency where the dipole is 1/2WL and resonant,
it is 180 feet long and 180 degrees long so the number of feet of
wire is also the number of degrees of antenna. Here is my 1/2WL
dipole with current pickup coils installed at points 'x' and 'y' and
FP is the feedpoint,the impedance of which is 60 ohms.

```
------------------------------FP-------x---------------y-------
```

Total length is 180 feet. The distance between 'x' and 'y' is 45 feet.
Since feet = degrees in this case, the number of degrees between
'x' and 'y' is known to be 45 degrees from antenna theory. Those
45 degrees are what I am going to attempt to replace with a coil.

So I adjust the feedpoint current to one amp at a reference phase angle of zero degrees and measure the current at 'x' and the current at 'y'. The current at 'x' is 0.92 amp at 0 deg. The current at 'y' is 0.38 amp at 0 deg. Already I am not understanding my measurements. The electrical length between 'x' and 'y' is obviously 45 deg. Why is there no phase shift at all in the measured current between 'x' and 'y' and the feedpoint current? But I want to complete this task so I will wait until later for an explanation to that apparent paradox.

I take the 45 feet of wire from each side of the dipole, wind it into two coils, and install them in each side. Now the 90 foot long dipole looks like this.

-------//////-------FP------x-//////-y------

I make some more measurements with the feedpoint current set to one amp at zero degrees. The resonant frequency of the dipole has changed from the earlier resonant frequency. I have to adjust the number of turns on the coil to return to the original frequency. I discover that the feedpoint impedance has dropped to 45 ohms. I measure the current at each end of the coil and at one end it is 1.1 amp at 0 deg and at the other end it is 0.6 amp at 0 deg

These are not the results predicted by my neighboring ham friend. I'm confused but here are the things I know for sure.

1. The resonant frequency changed when I installed the coil so the coil is not a perfect replacement for the wire.

2. The feedpoint impedance decreased from 60 ohms to 45 ohms. Since 45 ohms is closer to 50 ohms than is 60 ohms, I'm not too interested in knowing why..

3. The current at 'x' increased from 0.92 amp at 0 deg in the wire dipole to 1.1 amp at 0 deg in the loaded dipole. The phase didn't change.

4.The current at 'y' increased from 0.38 amps at 0 deg in the wire dipole to 0.6 amp at 0 deg in the loaded dipole. The phase didn't change.

5. No matter where I measure the current in either system, the phase always comes up zero degrees between any two points from tip to tip anywhere on either dipole no matter how far apart are the measurement points. My neighboring ham friend said the number of degrees in the coil had to be the number of degrees in the wire and indeed, both are measured to be zero degrees, but I wonder if that's really what he had in mind when he said the delay would be equal. Zero equals zero, but what does that mean for me?

The change in feedpoint impedance and the different current magnitudes don't much bother me but I am really bothered by those phase measurements. The dipole is 180 degrees long

and the current should be changing phase, at least on the wire
if not through the coil. I need some expert to explain how those
phase measurements on the wire are possible on both antennas.
I know my phase measurements are correct but why are they
always zero degrees? And since they are always zero degrees,
what information are they providing?
--
73, Cecil, W5DXP

2862. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 17:40:56 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ph7j12tfpqarigmr4qu1vie69s3g9ac4tf@4ax.com>
Source record: 62973

On Thu, 16 Mar 2006 09:09:40 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>On Thu, 09 Mar 2006 21:40:40 GMT, "Cecil Moore" <mycall@arrl.net>
>wrote:
>
>>Your 100uH coil above exhibits 60 degrees of phase shift
>>even for the voltage and that's 1/6 wavelength
>
>On Thu, 16 Mar 2006 08:56:19 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>> When the speculation is that the coil presents a 1:1 replacement for
>>> the delay of the "missing" segment of the resonant antenna, then this
>>> premise stumbles at the starting blocks.
>>
>>Nobody said anything about a 1:1 replacement. That was just
>>somebody's strawman.
>
>We all know who "somebody" is. [threadbuster #4]
>
>But if this is news to you, it must have been one of your other
>personalities (Hokum's Razor?) at the keyboard who posted the message
>at the top.

:-) :-) :-) :-) :-)

It just occurred to me that those two posts were a week apart (more or
less) and denote a phase change (the one cancels the other if they
were to vectorally combined).

Thus and forever more, this proves that newsgroups (when heavily fed
from a source of confusion, linearly loaded with nonsense, and
terminated with a embarrassing revelation) exhibit transmission line
properties and can transform a stupid idea (at the top) into a
brilliant one (at the bottom) - or versa vice.

In conformance to transmission line properties, this cycle of phase
reversals is repeated every
1 / [1 + tan (c ï¿½ Vf / posts)]ï¿½ Years

2863. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:02:23 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <kf9j129so6lna2a0o4vhqvb0eg4j8ihs5i@4ax.com>
Source record: 62974

On 16 Mar 2006 12:19:20 -0500, "Bill Turner" <noway@nohow.com> wrote:

>Is the current the same at both ends of a mobile whip's loading coil?

Sorry Bill,

Depends....

Yes, of course not. The clear and compelling lesson to be learned is that you CANNOT apply Kirchhoff's laws to networks that are large in relation to wavelength. This single caveat was drilled into me in sophomore EE.

Any variance in current measured, that is larger than errors that may be attributed to is measurement PROVES that the size in relation to wavelength necessarily invalidates Kirchhoff solutions. This single truth has been observed by me at the calibration bench.

As Roy noted, it demands another set of equations. In the Metrology field, that is what we were paid to use, or to derive. Suffice it to say that modeling programs replace the tedium of scribbling out that math, and just getting on with the next act.

73's
Richard Clark, KB7QHC

2864. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:04:11 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vMhSf.57007$Jd.47315@newssvr25.news.prodigy.net>
Source record: 62975

"Ian White GM3SEK" <gm3sek@ifwtech.co.uk> wrote:
> That was not a "shortcut" or approximation.

It really doesn't matter if it is or it isn't. I was quoting another pretty smart guy who seems to know the history of these models. He said Maxwell's equations matured first, then the distributed network model matured as a simplified subset of Maxwell's equations, then the lumped-circuit model matured as a subset of the distributed network model. But a chicken/egg argument is meaningless except for historical accuracy. We are in the present looking at those models.

> In that limiting case, the current at the two terminals of a pure
> inductance must be the same in both magnitude and phase.

There's that catch word, "pure". Pure inductances do not exist in the real world. They are a construct of the lumped-circuit model and are presupposed to have the characteristice that you mention. One cannot prove the validity of that model by quoting the presuppositions. A 75m bugcatcher coil is NOT a pure inductance.

> By "current" we
> mean the simple, straightforward movement of charge. If you count the
> electrons in and out at the two terminals, there can be no difference in
> either magnitude or phase because that would require electrons to be
> stored or lost from somewhere - which inductance cannot do. Kirchhoff's
> current law recognises the logic of this.

Standing wave current with its cos(kz)*cos(wt) equation is not constrained by those rules since the phase of the standing wave is everywhere zero deg for a 1/2WL thin-wire dipole.

> This is how inductance always works in every type of non-radiating
> circuit, both in theory and in real life.

A pure inductance cannot work that way in real life because it doesn't exist in real life. If the forward current is in phase with the reflected current at one end of the coil, the current will be a maximum (loop) at that point. If the forward current is 180 degrees out of phase with the reflected current at the other end of the coil, the current will be a minimum (node) at that point. Please take a look at:

http://www.qsl.net/w5dxp/3freq.gif

How does one explain the current reported by EZNEC at two times the resonant frequency?

> When developing a new theory, it is normal, standard required practice
> to test it for simplified, limiting cases that we already understand.
> The new theory MUST work for all these test cases; it MUST connect
> seamlessly with everything we already know.

The distributed network model predates my birth by decades and is not new. It is known to work in situations where the lumped-circuit model fails. It has never been known to fail in a situation where the lumped-circuit model works.

> At his point, some heckler pipes up: "Ah, but what about Einstein?"
> Thank you, sir - the perfect example to prove my point! If Einstein's
> equations of relativity are tested for the limiting case where
> velocities are very low, they connect seamlessly into Newton's laws of
> motion. If they hadn't, Einstein would have thrown them out and gone
> back to think again.

The distributed network model is to relativity as the lumped-circuit model is to Newtonian physics. Newtonian physics is a subset of relativity. The lumped-circuit model is a subset of the distributed-network model.

> When Cecil's theory is tested for the simple limiting case of pure
> inductance, it MUST join up seamlessly with conventional circuit theory.

It's not my theory and it does indeed join up seamlessly. It is the lumped-circuit model that does not join up seamlessly with Maxwell's equations. How could it since it assumes faster than light speed of current flow? The presuppositions of the lumped-circuit model even violate the theory of relativity.

> If it requires anything that "don't fit", such as a phase shift in
> current through a pure inductance, or special kinds of "current" that
> are different from the simple, straightforward movement of charge
> (electrons), then the theory fails.

It doesn't require anything of pure inductances since pure inductances don't exist in reality. It requires that real world inductances obey the laws of physics.

If one doesn't understand the implications of the equation for standing wave current, one needs to crack open that old dusty math book.
--
73, Cecil, W5DXP

2865. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:20:19 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <D%hSf.57011$Jd.15879@newssvr25.news.prodigy.net>
Source record: 62976

Richard Clark" <kb7qhc@comcast.net> wrote:
> On Thu, 09 Mar 2006 21:40:40 GMT, "Cecil Moore" <mycall@arrl.net>
> wrote:
>
> >Your 100uH coil above exhibits 60 degrees of phase shift
> >even for the voltage and that's 1/6 wavelength.

That does NOT say the coil replaces 60 degrees of wire in the antenna.
One who thinks such is mistaken. The phase shift in the coil is what it
is. It usually does NOT correspond to the phase shift of the wire it
replaces.
The point of that statement was that real world phase shift is never zero.
The one-way phase shift is known to be 90 degrees at the self-resonant
frequency.

> On Thu, 16 Mar 2006 08:56:19 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
> >> When the speculation is that the coil presents a 1:1 replacement for
> >> the delay of the "missing" segment of the resonant antenna, then this
> >> premise stumbles at the starting blocks.
> >
> >Nobody said anything about a 1:1 replacement. That was just
> >somebody's strawman.
>
> We all know who "somebody" is. [threadbuster #4]
>
> But if this is news to you, it must have been one of your other
> personalities (Hokum's Razor?) at the keyboard who posted the message
> at the top.

Some people have misunderstood the meaning of that statement. See above.
So many jumping to conclusions - so few trying to understand.
--
73, Cecil, W5DXP

2866. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:23:24 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <w2iSf.57012$Jd.36394@newssvr25.news.prodigy.net>
Source record: 62977

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:gv6j12dn51fkrd6b5dlfvh1a704b4r6h6n@4ax.com...
> Cecil Moore <mycall@arrl.net> wrote:
> >Isolating the magmount would be disconnecting the
> >ground plane from a 1/4WL antenna and would contribute
> >nothing of value to the discussion.
>
> Certainly not for you, that is apparent. It would only more closely
> conform to your reference material's isolated coils, and that would
> jeopardize your "confirmations" n'est pas?

On the contrary, Tesla coils are operated over a large ground plane.
The sphere at the top functions like a top hat. Everyone really should
read the referenced Corum papers to avoid misconceptions like this
one.
--
73, Cecil, W5DXP

2867. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:39:15 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <kmbj12hc27b1hqa8sskk77i124t9lf0q4f@4ax.com>
Source record: 62978

On Thu, 16 Mar 2006 18:20:19 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:
>> On Thu, 09 Mar 2006 21:40:40 GMT, "Cecil Moore" <mycall@arrl.net>
>> wrote:
>> >Your 100uH coil above exhibits 60 degrees of phase shift
>> >even for the voltage and that's 1/6 wavelength.
>That does NOT say the coil replaces 60 degrees of wire in the antenna.
Of course not. 1/6 wavelength of wire doesn't exhibit 60 degrees
phase shift - does it?
>One who thinks such is mistaken.
Less than a week to this new phase shift in the non-linear dynamics of
Newsgroups-as-transmissionline. ;-)

>The phase shift in the coil is what it is.

More Zen from the edge of Nirvana. Let me try mine:
The soup spoon in a magnetron is what Campbell's is to Andy Warhol.

Give us another!

2868. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:41:21 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <o7cj1219q3ru5te08ejqd06uq840bgfl52@4ax.com>
Source record: 62979

On Thu, 16 Mar 2006 18:23:24 GMT, "Cecil Moore" <mycall@arrl.net>
wrote:
>Everyone really should read the referenced Corum papers
>to avoid misconceptions like this one.

This is coasting with the brakes set on self-referentially.
Still amusing however.

2869. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:44:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <xmiSf.57016$Jd.17344@newssvr25.news.prodigy.net>
Source record: 62980

"Bill Turner" <noway@nohow.com> wrote in message
news:44199e18_1@newsfeed.slurp.net...
> I've been following this mind-numbing discussion for days now and still
> don't have the answer to the original question:

Bill, I posted an example of me, as a naive ham, reducing the size of my
dipole from 180 feet to 90 feet by adding loading coils. Please follow
that experimental excursion to find out what the discussion is all about.

> Is the current the same at both ends of a mobile whip's loading coil?

The mobile antenna is a standing wave antenna. It has a forward current
and a reflected current, both traveling waves, flowing through it.

1. The forward current flowing through the coil is close to the same
magnitude at both ends of the coil.

2. The forward current phase shift through the coil is difficult to measure
but it is NOT zero. It is more in the neighborhood of tens of degrees.

3. The reflected current flowing back through the coil is close to the
same magnitude at both ends of the coil.

4. The reflected current phase shift is close to the same as the
forward current phase shift, i.e. tens of degrees..

5. The standing wave current, the only one measured so far, is the
phasor sum of the forward current phasor and the reflected current
phasor. The magnitude of the standing wave current depends upon
the relative phase between the forward current and reflected current.

To see some variations please visit: http://www.qsl.net/w5dxp/3freq.gif

When one realized that the standing wave current at the bottom of
the coil is 0.1 amp while the standing wave current at the top of
the coil is 2 amps, one comprehends why he must abandon the
concept that standing wave current flows.

From the equation for the standing wave current, cos(kz)*cos(wt),
one can be see that the standing wave current is not a normal current.
This is explained in terms of light waves in "Optics", by Hecht.

6. Since the forward current phasor and reflected current phasor are
rotating in opposite directions, the phase of the standing wave current
is fixed and close to zero degrees all up and down the antenna, from
feedpoint to tip top. Since the phase of the standing wave is unchanging,
it cannot be used to measure the phase delay through a coil. All of the
delay measurements, except the self-resonant frequency measurements,

have used standing waves which are incapable of phase transitions in the average loaded mobile antenna.

The phase of the standing-wave current is fixed close to zero degrees until the antenna gets electrically longer than 90 degrees. Then it shifts abruptly by 180 degrees and remains fixed at that new value for another 90 degrees. This is illustrated in Kraus', "Antennas for All Applications", 3rd edition, Figures 14-4 - 14.6.
--
73, Cecil, W5DXP

2870. Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 18:55:06 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142535306.321916.198140@j52g2000cwj.googlegroups.com>
Source record: 62981

Most hams have an awareness of what skin depth is all about
but I am stumbling over the fact that the formulae show it
as a 2 dimensional thing which raises a question to me.
Can one compensate for radiation purposes element width
for lack of the required skin depth and also what role
does skin depth play with homogenous or
non-homogenous capacitive (capacitor) fields.?
Both of these items contain inductance and resistance
but apparently volume which is three dimensional does not
play a role.
Can somebody explain this personal puzzle of mine or
point to a book that points to the lacking volume aspect ?
The above questions I suppose could come into play
if one thought about aluminised mylar for antenna use
which has about the thinnest conductor depth around.
TIA
Art

2871. learning how to use ladderline

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:01:53 UTC
From: Paladin <kb1ghh@hotmail.com>
Message-ID: <1142535713.173571.193420@j33g2000cwa.googlegroups.com>
Source record: 62982

Hello all,
I put up a linear-loaded dipole this past fall/Oct. The feedpoint
was at 55ft.,and the ends
which are 70ft. long were at 15ft. above the ground. I use a Heathkit
2060a manual tuner.
I was able to use 80ft. of 450ohm ladderline,to a 4/1 balun at the
window,and then HAD TO USE 50FEET of 213 coax to the tuner!! I know
that it did give me all of 160m,BUT I wanted
to have a shorter run of coax,also the coax was "reactive". If I moved
it or wiggled it the meters would jump all over the place !! Many
told me that I needed to experiment with the length of
ladderline;getting it to a certain amount of "wavelength". Well, we
had some good weather,and I really wanted to get rid of that long coax
in the house,so I cut my ladderline to
exactly 62.3 feet,then added the balun outside on the tower,and went
213 coax the rest of the way. IT'S WORKING FANTASTIC. Its only been a
couple of days now,but I can see that it tunes much better,has less
refelected power,it doesn't "snap" or "crack" in "dissagreement
with the lengths,......just more happier.
Thank you to all who shared their opinions and ideas
with me.

on to the
next problem, 73's, Paladinghh

2872. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:01:56 UTC
From: w8ji@akorn.net
Message-ID: <1142535716.514573.157360@p10g2000cwp.googlegroups.com>
Source record: 62983

Cecil Moore wrote:
> Note that at the frequency where the dipole is 1/2WL and resonant,
> it is 180 feet long and 180 degrees long so the number of feet of
> wire is also the number of degrees of antenna. Here is my 1/2WL
> dipole with current pickup coils installed at points 'x' and 'y' and
> FP is the feedpoint,the impedance of which is 60 ohms.
>
> ------------------------------FP-------x---------------y-------
>
> Total length is 180 feet. The distance between 'x' and 'y' is 45 feet.
> Since feet = degrees in this case, the number of degrees between
> 'x' and 'y' is known to be 45 degrees from antenna theory. Those
> 45 degrees are what I am going to attempt to replace with a coil.
>
> So I adjust the feedpoint current to one amp at a reference phase
> angle of zero degrees and measure the current at 'x' and the current
> at 'y'. The current at 'x' is 0.92 amp at 0 deg. The current at 'y' is
> 0.38 amp at 0 deg. Already I am not understanding my measurements.

Your measurements are probably wrong.

When did you measure that? After we resolve the error in current, we
can move on.

73 Tom

2873. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:14:33 UTC
From: w8ji@akorn.net
Message-ID: <1142536473.807463.199890@e56g2000cwe.googlegroups.com>
Source record: 62984

Bill Turner wrote:
> I've been following this mind-numbing discussion for days now and still
> don't have the answer to the original question:
>
> Is the current the same at both ends of a mobile whip's loading coil?
>
> Bill, W6WRT

Bill,

Did you read this? Actual measurements!!

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

As Richard Clark said, it all depends on the physical size and
constrution of the inductor and the antenna above the inductor. In a
reasonably well-constructed antenna the difference is small.

Anyone who says otherwise is just guessing.

73 Tom

2874. Re: Element correction for through beem Yagi elements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:21:56 UTC
From: Glen Overby <coreSPAMsample@charter.net>
Message-ID: <ksdcvd.2bj.ln@monolith.nodomain>
Source record: 62991

David wrote:
>The design was assuming that the elements were to be insulated from the
>boom but I am having trouble making small insulators to hold these in
>place.
>It would be simpler for construction if I could simply drill through the
>beam and weld the rods in place or connect via a screw through the
>centre of the beam.
>
>The correction factor formula I have found seems to be for insulated
>through-beam elements.
>
>Q: Is there a correction factor I can apply to enable me to construct
>the antenna in this manner ?

The ARRL Antenna Book has a graph showing the correction needed for thru-the-beam elements. I can't recall if it is for insulated elements or not. It's in the chapter on Yagis -- the chapter with all the K1FO yagi designs.

>Q: Is there an alternate design I could use that would be simpler to
>construct. (I am looking for around 7dB gain at low angle of radiation -
>point to point communications link). Feedline is 50 Ohm coaxial cable,
>power is less than 1 Watt.

WA5VJB has some cheap yagi designs, and also sells PC board-based antennas on his web site.

http://www.clarc.org/Articles/uhf.htm

I built a 902mhz WA5VJB design using a piece of square moulding. If you paint the boom with primer or polyurethene, it should last some time.

Glen, kc0iyt

2875. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:31:04 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <Y1jSf.57033$Jd.40860@newssvr25.news.prodigy.net>
Source record: 62985

<w8ji@akorn.net> wrote:
> Your measurements are probably wrong.

Not much accuracy is needed to measure a constant phase of zero.
Anyone is invited to duplicate those phase measurements.

> When did you measure that? After we resolve the error in current, we
> can move on.

I rigged up a 6m dipole yesterday with current pickups driving equal
lengths of coax. Remember, we are not discussing the accuracy of
my magnitude measurements, only of my phase measurements.

After we resolve exactly who made the measurement error, we can
move on. My measurements agree with Figure 14-4 in Kraus'
"Antennas for All Applications", 3rd edition.

Question: would it be legal for me to scan that graphic and post it
on my web page if I give Kraus full credit?
--
73, Cecil, W5DXP

2876. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:46:49 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142538409.224543.58950@i39g2000cwa.googlegroups.com>
Source record: 62986

Indeed, Ian. Just so.

It's amazing to me that this thread has gone on for so many postings. (And here I am contributing to it! ;-) But I go back to the very first posting in the thread, where Reg said it all. Well, maybe not QUITE all, but close. I'd invite folk to go back and look at that posting. I believe Reg noted that a real physical (single-layer solenoid) coil has: inductance, capacitance (with a radial electric field), wire resistance and radiation resistance. One additional item I'd like to note is turn-to-turn capacitance; Reg may have been thinking of that one too, but I didn't get it explicitly from his posting.

Measuring currents doesn't present too much of a challenge if one is careful about it, but measuring voltage is an entirely different matter, since it's in the presence of a time-varying magnetic field if there is any current in the coil. But it is possible to measure the electric field and the magnetic field if one wishes.

I have not been following this thread very closely, because I really do NOT expect "the answer" to be any different than what, as Reg noted in that initial posting, is predicted by an ACCURATE model. People who designed travelling wave tubes understood very well the properties of a helix of wire with respect to propagating a wave. The software I've been using for years now to predict single-layer solenoid coil behaviour takes into account all the interesting effects, and will predict quite accurately the first parallel resonance and the first series resonance, the Q, the inductance, and fundamental transmission line characteristics below resonance. I have other resources that let me predict the change in behaviour when a coil is inside a shield. I've never been surprised by any of the results: taken to correct limits, they all join up, as Ian notes, with conventional circuit theory. In fact, even the complex models match conventional circuit theory, just with more elements in the model.

I do note that one must be careful about exactly what conventional circuit theory actually says. For example, many people seem to think that Kirchoff's Voltage Law is something like, "voltages around a loop add up to zero." That is an abbreviated statement of the law, and is in general not correct.

Cheers,
Tom

2877. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:53:22 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jghjq49sjiab@corp.supernews.com>
Source record: 62987

Bill Turner wrote:
> I've been following this mind-numbing discussion for days now and still
> don't have the answer to the original question:
>
> Is the current the same at both ends of a mobile whip's loading coil?
>
> Bill, W6WRT

No, it isn't, provided it's a solenoidal coil of reasonable length. I don't think anyone disagrees with this. The disagreements are to why, and what would happen to the current if the coil were made very short.

Roy Lewallen, W7EL

2878. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 19:54:17 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <JnjSf.571378$qk4.95089@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62988

Cecil,

One more time.

In a standing wave antenna problem, such as the one you describe, there is no remaining phase information. Any specific phase characteristics of the traveling waves died out when the startup transients died out.

Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.

The only "phase" remaining is the cos (kz) term, which is really an amplitude description, not a phase. The so-called "phase reversal" in longer antennas is not really about phase either. It is merely a representation of the periodic sign reversal seen in a cosine function. (This is one more definition of phase to add to the confusion.)

Of course, all of this depends on an ideal system with no losses, etc. The real world is not ideal, but your posed problem does not appear to contain any of those nasty realities. You have undoubtedly seen small phase offsets reported in EZNEC for this sort of antenna. Those phase offsets represent the impact of real-world effects, such as radiation and ground effects.

The applicability of linear superposition and the assumption of steady-state conditions means that the resulting standing wave contains ALL of the possible information about the system in steady-state mode. Yes, you can divide the problem back into two traveling waves, in the manner that Kraus, Balanis, and the entire world understand. But you won't gain any new information by doing so, because any unique traveling wave information is permanently lost.

73,
Gene
W4SZ

Cecil Moore wrote:

[snip]

> These are not the results predicted by my neighboring ham friend.
> I'm confused but here are the things I know for sure.
>
> 1. The resonant frequency changed when I installed the coil so
> the coil is not a perfect replacement for the wire.
>
> 2. The feedpoint impedance decreased from 60 ohms to 45

> ohms. Since 45 ohms is closer to 50 ohms than is 60 ohms,
> I'm not too interested in knowing why..
>
> 3. The current at 'x' increased from 0.92 amp at 0 deg in the
> wire dipole to 1.1 amp at 0 deg in the loaded dipole. The phase
> didn't change.
>
> 4.The current at 'y' increased from 0.38 amps at 0 deg in the
> wire dipole to 0.6 amp at 0 deg in the loaded dipole. The phase
> didn't change.
>
> 5. No matter where I measure the current in either system, the
> phase always comes up zero degrees between any two points
> from tip to tip anywhere on either dipole no matter how far
> apart are the measurement points. My neighboring ham friend said the number
> of degrees in the coil had to be the number of degrees in the
> wire and indeed, both are measured to be zero degrees, but
> I wonder if that's really what he had in mind when he said
> the delay would be equal. Zero equals zero, but what does
> that mean for me?
>
> The change in feedpoint impedance and the different current
> magnitudes don't much bother me but I am really bothered
> by those phase measurements. The dipole is 180 degrees long
> and the current should be changing phase, at least on the wire
> if not through the coil. I need some expert to explain how those
> phase measurements on the wire are possible on both antennas.
> I know my phase measurements are correct but why are they
> always zero degrees? And since they are always zero degrees,
> what information are they providing?
> --
> 73, Cecil, W5DXP
>
>

2879. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:00:14 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jgugo5argkc3@corp.supernews.com>
Source record: 62989

Richard Clark wrote:
> On 16 Mar 2006 12:19:20 -0500, "Bill Turner" <noway@nohow.com> wrote:
>
>> Is the current the same at both ends of a mobile whip's loading coil?
>
> Sorry Bill,
>
> Depends....
>
> Yes, of course not. The clear and compelling lesson to be learned is
> that you CANNOT apply Kirchhoff's laws to networks that are large in
> relation to wavelength. This single caveat was drilled into me in
> sophomore EE.
>
> Any variance in current measured, that is larger than errors that may
> be attributed to is measurement PROVES that the size in relation to
> wavelength necessarily invalidates Kirchhoff solutions. This single
> truth has been observed by me at the calibration bench.
>
> As Roy noted, it demands another set of equations. In the Metrology
> field, that is what we were paid to use, or to derive. Suffice it to
> say that modeling programs replace the tedium of scribbling out that
> math, and just getting on with the next act.
>
> 73's
> Richard Clark, KB7QHC

I need to add that the current can be different at both ends even if the coil is quite short in terms of wavelength. All that's required is capacitive coupling that's different from the two ends of the coil, or coupling to a radiating wire. Both are typically the case with an antenna loading coil. Another thing which can cause unequal currents is poor coupling among turns, which can occur in long coils or ones with wide turn spacing. But when the inductor length is short in terms of wavelength, the current imbalance can be explained with simple lumped element models. No distributed or transmission line theory, let alone Cecil's exotic variations, is necessary.

Roy Lewallen, W7EL

2880. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:07:46 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jhck5r955q0f@corp.supernews.com>
Source record: 62990

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>> Note that at the frequency where the dipole is 1/2WL and resonant,
>> it is 180 feet long and 180 degrees long so the number of feet of
>> wire is also the number of degrees of antenna. Here is my 1/2WL
>> dipole with current pickup coils installed at points 'x' and 'y' and
>> FP is the feedpoint,the impedance of which is 60 ohms.
>>
>> ------------------------------FP-------x---------------y-------
>>
>> Total length is 180 feet. The distance between 'x' and 'y' is 45 feet.
>> Since feet = degrees in this case, the number of degrees between
>> 'x' and 'y' is known to be 45 degrees from antenna theory. Those
>> 45 degrees are what I am going to attempt to replace with a coil.
>>
>> So I adjust the feedpoint current to one amp at a reference phase
>> angle of zero degrees and measure the current at 'x' and the current
>> at 'y'. The current at 'x' is 0.92 amp at 0 deg. The current at 'y' is
>> 0.38 amp at 0 deg. Already I am not understanding my measurements.
>
> Your measurements are probably wrong.
>
> When did you measure that? After we resolve the error in current, we
> can move on.

The measurement looks good to me. The phase is exactly what EZNEC
predicts -- constant along the wire. The ratio in magnitudes we'd expect
depends on the positions along the wire, not just the spacing.

Roy Lewallen, W7EL

2881. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:14:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <qGjSf.1446$4L1.1039@newssvr11.news.prodigy.com>
Source record: 62992

"Roy Lewallen" <w7el@eznec.com> wrote :
> No, it isn't, provided it's a solenoidal coil of reasonable length. I
> don't think anyone disagrees with this. The disagreements are to why,
> and what would happen to the current if the coil were made very short.

The phase shift measurements are being made using a signal with
unchanging phase and thus incapable of providing a phase shift.

The disagreement is what would valid phase measurements actually
look like if a signal capable of changing phase was used to make the
phase measurements.
--
73, Cecil, W5DXP
.

2882. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:17:04 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <0ntoe3-dab.ln1@p400bob.personal.cox.net>
Source record: 63000

Hi Frank/Arie

Not really knowing what I was doing <grin> I tried EK and got the same bad average gain figure.. I also removed most of the lower part of the mast since its effect will be fairly minimal. No help there either.

Tnxs for your comments gents. There is still the two questions though;

- Does one bother to model in a "curved" wire for copper pipe joiners? I note Mr Cebik didnt mention it when he was talking about J poles on 2m.

- Is the diameter of the source wire important?

Thinking now about reducing the copper pipe diameter simply so I can model it properly. Then again its a pretty broad design and tuning would be easy...

Cheers Bob VK2YQA

Frank's wrote:
> Not sure if "EK" will help much here since the "wire" diameter is >
> lambda/100. Seems to be a borderline case for a wire grid model. It is
> like building a 20m dipole from 10" diameter pipe.
>
> Also noticed the pole touches the ground, which is not allowed in NEC2.
> Don't understand why it does not produce a warning. Usually when I connect
> a wire to a non-perfect ground the ground grid turns purple (NEC-Win Pro),
> and I get crazy results, but not in this case. Not that this is relevant in
> this model.

2883. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:18:10 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <hihj12t4ss7dv9hnlfhaothihtn19hoiqa@4ax.com>
Source record: 62994

On 16 Mar 2006 10:55:06 -0800, "art" <aunwin@insightbb.com> wrote:

>Can somebody explain this personal puzzle of mine or
> point to a book that points to the lacking volume aspect ?

For capacitors, charge does not reside "inside" the conductor, it is
between the plates (there's volume for you, A ï¿½ d).

For inductors, charge is found in the core (there's volume for you, 2
ï¿½ Pi ï¿½ r ï¿½ l).

For current, flow is forced to the surface due to repulsion of charge.

2884. Capacitance-of-a-wire conundrum

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:18:40 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142540320.409147.68520@z34g2000cwc.googlegroups.com>
Source record: 62993

Just a little something to think about...

If I have a wire, radius r, nominally infinitely long, in free-space, does it have non-zero capacitance per unit length?

A sphere in freespace has capacitance directly proportional to its radius: C = 4*pi*epsion.zero*radius. So the earth, in something approximating freespace, has a bit over 40uF of capacitance. But what about a wire?

A coaxial capacitor (the capacitance between conductors of a coaxial cable, for example) with vacuum (or essentially with air) dielectric and inner conductor radius a and outer conductor inner radius b, has capacitance C per unit length L given by

C/L = 2*pi*epsion.zero/(ln(b/a))

As b goes to infinity (the wire in freespace case), C/L goes to zero.

So if I have a thin wire, 15 meters long, out in freespace, and a 10MHz (30 meter wavelength) EM wave comes along and passes by that wire, what happens in the wire?

Cheers,
Tom

2885. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:22:10 UTC
From: w8ji@akorn.net
Message-ID: <1142540530.873073.195590@e56g2000cwe.googlegroups.com>
Source record: 62995

Cecil Moore wrote:
>
> I rigged up a 6m dipole yesterday with current pickups driving equal
> lengths of coax. Remember, we are not discussing the accuracy of
> my magnitude measurements, only of my phase measurements.

What was the indicator? What was the coupling device?

On six meters, it would take a darned small probe and indicator to not greatly perturb the system.

If I was going to test something like this, I'd use a small indicator hanging from the antenna and do it on a low frequency.

So, tell us about the probe and indicator.

73 Tom

2886. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:30:18 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jimsb3if6v7a@corp.supernews.com>
Source record: 62996

art wrote:
> Most hams have an awareness of what skin depth is all about
> but I am stumbling over the fact that the formulae show it
> as a 2 dimensional thing which raises a question to me.

Skin depth is a scalar quantity, not two dimensional. Perhaps you're referring to the fact that concentration of the current in a thin layer affects both the resistance and inductance of a conductor?

> Can one compensate for radiation purposes element width
> for lack of the required skin depth

I've never seen an application that requires a particular skin depth. Can you give an example?

and also what role
> does skin depth play with homogenous or
> non-homogenous capacitive (capacitor) fields.?

Skin depth is a property of conductors, not fields -- although of course it comes about because of interaction of fields with the conductors. If a capacitor is made from conductors, those conductors will exhibit skin effect like any others.

> Both of these items contain inductance and resistance
> but apparently volume which is three dimensional does not
> play a role.

Skin effect causes current to be concentrated near the surface of a conductor. Its density exponentially decays as you go deeper. Consequently, the fraction of the total current flowing below a few skin depths is insignificant, so the depth and makeup of the conductor below that depth makes no real difference to the resistivity of the material. That's why a hollow tube conducts just as well as a solid wire at radio frequencies.

> Can somebody explain this personal puzzle of mine or
> point to a book that points to the lacking volume aspect ?
> The above questions I suppose could come into play
> if one thought about aluminised mylar for antenna use
> which has about the thinnest conductor depth around.

I hope the brief description above explains why volume isn't important -- it's just that at RF there's no current in most of the volume of a wire or plate, so that volume which carries no current can be ignored.

As for your metalized Mylar, the first thing to do is to determine whether the aluminum is at least several skin depths thick. If it is, then any greater thickness makes no difference, and you can treat it as though that's all the thicker it is. If it's one skin depth or thinner, you can ignore skin effect and treat it as though the current is evenly distributed throughout the thickness. If it's in between those limits, the R and internal L can be calculated, but it involves Bessel functions. An estimate is usually adequate in those situations.

There's a great deal of information about skin effect on the web, although like most topics found there, you should read with caution. The subject is covered thoroughly in virtually every text involving electromagnetics, and most texts on transmission lines. I'd expect to find it covered in the ARRL Handbook as well.

I should add one final note. Due to a fortunate quirk of mathematics, the resistivity of an infinitely thick material at RF is the same as that of a material which is exactly one skin depth thick in which current is uniformly flowing. That is, if we know the skin depth we can easily calculate the RF resistivity by calculating the DC resistivity of a one skin depth thick layer of the material. It's important to realize that's not really how the current is distributed, but the method gives the correct answer. For this method to work with reasonable accuracy, the material has to be thick enough for the current to follow the exponentially dropping density characteristic down to a depth where it's insignificant. This is on the order of 3 - 5 skin depths, depending on the accuracy you require.

Roy Lewallen, W7EL

2887. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:47:16 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142542035.975885.202000@z34g2000cwc.googlegroups.com>
Source record: 62997

I'm not sure I understand 'zactly what the question is here...but perhaps if you step back a bit from the formulas, it will become clearer.

"Skin depth" is just talking about the fact that at high frequencies, current tends to flow only in the outer layer of a conductor. The effective thickness of that layer is the skin depth. If you have a conductor that's several skin depths thick (at the frequency of interest), the inside of that conductor isn't doing anything for the conduction--though it may be very significant with respect to mechanical properties--how well an antenna element supports itself or holds up in the wind.

Qualitatively, the skin depth:
--is GREATER (thicker skin) for poorer conductors
--is LESS as frequency increases
--causes INCREASED resistance as frequency increases
These effects go as the square root of DC conductivity and frequency, so for example aluminum has about 1.53 times the resistance of copper (depending on alloys...), but that results in a skin depth in aluminum that's about 1.24 times THICKER in the aluminum, so the RF resistance of aluminum is not 1.53 times the RF resistance of copper, but only 1.24 times as great. And for a given RF current in a wire (like in coax), if you double the frequency, the I^2*R loss goes up only 1.41 times, not 2 times. All that assumes that you're at frequencies high enough that the wire or conductor is much thicker than one skin depth.

For visualization, it's also useful to think of the current tapering off exponentially as you go into the conductor from the surface, so at one skin depth, the current density is 1/e = 37% as much as it is at the surface.

If you happen to have a very thin conductor, like your aluminization, much less than one skin depth thick, then the current density in it will be essentially independent of the depth into the conductor. Other effects may (very likely will) cause the current density to not be uniform over the width of that very thin surface, but that's another matter. For example, current in a wire in a coil, or in a parallel-conductor transmission line, is not distributed uniformly around the wire because of interaction with current in the nearby wires. See "proximity effect."

Does that help, or is there more to your "personal puzzle"?

Cheers,
Tom

2888. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:47:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <s9kSf.47858$F_3.36675@newssvr29.news.prodigy.net>
Source record: 62998

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:
> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen
> again.

So how can a signal, devoid of phase, be used to measure the phase
shift through a loading coil?

> The only "phase" remaining is the cos (kz) term, which is really an
> amplitude description, not a phase.

How can one make a phase measurement using only the amplitude
of a signal?
--
73, Cecil, W5DXP

2889. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 20:55:46 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <mhkSf.47859$F_3.46043@newssvr29.news.prodigy.net>
Source record: 62999

"Roy Lewallen" <w7el@eznec.com> wrote:
> The measurement looks good to me. The phase is exactly what EZNEC
> predicts -- constant along the wire. The ratio in magnitudes we'd expect
> depends on the positions along the wire, not just the spacing.

We are not talking about the magnitude measurements right now.
We are talking about the phase measurements. What good does
it do to use a signal, whose phase is fixed, to measure the phase
shift through a coil or through a wire.

The phase is constant along the wire with or without the presence
of a coil. Why then is a phase shift of zero on both sides of the
coil surprising? And of what importance is that measurement?
--
73, Cecil, W5DXP

2890. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 21:14:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ezkSf.47860$F_3.18225@newssvr29.news.prodigy.net>
Source record: 63001

<w8ji@akorn.net> wrote
>
> Cecil Moore wrote:
> > I rigged up a 6m dipole yesterday with current pickups driving equal
> > lengths of coax. Remember, we are not discussing the accuracy of
> > my magnitude measurements, only of my phase measurements.
>
> What was the indicator? What was the coupling device?

I have an assortment of toroids of various materials from Amidon. I'm
at work right now and I don't remember if I used 43 or F material.

> On six meters, it would take a darned small probe and indicator to not
> greatly perturb the system.

They are small toroids. I chose 6m because the dipole area was
physically small.

> If I was going to test something like this, I'd use a small indicator
> hanging from the antenna and do it on a low frequency.

Please feel free to make that measurement. W7EL just reported that
EZNEC agrees with my phase measurements. So does Kraus.

> So, tell us about the probe and indicator.

Similar to the ones W7EL used. They were calibrated within one turn
of each other. The signals at the ends of the coax lines were calibrated
for equality in magnitude and phase. Magnitudes are a relative measurement
but phase was not. I ran the experiment two ways.

One was Lissajous figures on my 100 MHz Leader. The other was putting
the two samples in opposite phase to each other, i.e. phasor subtraction.
For small angles, the angle is equal to the sine of the angle so the
addition
of two coherent sine waves yields an amplitude proportional to the phase
difference when the phase difference is small. The phase difference was
so small it was virtually undetectable.
--
73, Cecil, W5DXP

2891. Re: Capacitance-of-a-wire conundrum

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 21:25:53 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <mpij125gcmt230j6ogpkql24hkt9dpvkkc@4ax.com>
Source record: 63002

On 16 Mar 2006 12:18:40 -0800, "K7ITM" <k7itm@msn.com> wrote:

>C/L = 2*pi*epsion.zero/(ln(b/a))
>
>As b goes to infinity (the wire in freespace case), C/L goes to zero.
>
>So if I have a thin wire, 15 meters long, out in freespace, and a 10MHz
>(30 meter wavelength) EM wave comes along and passes by that wire, what
>happens in the wire?

Hi Tom,

As it goes to infinity? Indeed, there are conductors and charged
bodies much closer than that to your wire in space.

However, let's look at the implications using your same formula,
except we will move L to conform to your 15 meter specification:

C = 2 ï¿½ Pi ï¿½ epsilon0 ï¿½ L / (ln(b/a))
a = 1m (after all, thin is relative at infinite dimensions)
L = 15m
b= 1,000,000,000,000,000,000,000,...000m (10ï¿½ï¿½ï¿½ meters away)
epsilon0 = 0.00000000000885

C = 12 femtofarads

This was certainly at the limits of my usual Capacitor Bridge to
measure to this resolution 30 years ago, but time has marched on. This
sized capacitance is certainly encountered every day in my new field
of nanotech, and 1 femtofarad is measured by charge transfer
techniques.

Consider, Einstein's estimate of the radius of the Universe is roughly
10 Billion Light Years (ï¿½3dB) As this result above is vastly further
away than Einstein's guess (by more than 300 orders of magnitude),
lets look at again from his number:

C = 12.5 picofarads

Oddly enough, this value is on par with the distributed capacitance of
the coil's we've been pounding away on (and even more convergent, is
this is roughly the same amount of wire used in them).

73's
Richard Clark, KB7QHC

2892. Re: Element correction for through beem Yagi elements

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 21:32:13 UTC
From: Mike Newman <mnewman@clear.net.nz>
Message-ID: <4amj12thbt22ubfj4hfce0tiobd1p5nq3f@4ax.com>
Source record: 63003

On Wed, 15 Mar 2006 22:17:03 GMT, David <dhuisman@bigpond.net.au>
wrote:

>Hi,
>
>I am in the process of building a 4-Element Yagi to operate at 915 MHz.
>
>The design is as follows...
>Element Length Distance from REFL
>REFL 159mm 0mm
>DE 146mm 40mm
>D1 139mm 90mm
>D2 132mm 155mm
>
>Boom is 12.8mm OD square aluminium (1.6mm wall thickness)
>Elements are 6mm solid aluminium rod.
>
>The design was assuming that the elements were to be insulated from the
>boom but I am having trouble making small insulators to hold these in
>place.
>It would be simpler for construction if I could simply drill through the
>beam and weld the rods in place or connect via a screw through the
>centre of the beam.
>
>The correction factor formula I have found seems to be for insulated
>through-beam elements.
>
>Q: Is there a correction factor I can apply to enable me to construct
>the antenna in this manner ?
>
>Q: Does the Driven element need to be in the same plane as the other
>elements or can it be out of alignment (ie. If I use a small plastic
>enclosure to house the balun and make connection to the driven elements,
>the elements will not be in the middle of the beam but rather 5mm or so
>above the beam).
>
>Q: Is there an alternate design I could use that would be simpler to
>construct. (I am looking for around 7dB gain at low angle of radiation -
>point to point communications link). Feedline is 50 Ohm coaxial cable,
>power is less than 1 Watt.
>
>Hope I have given enough info to evoke some constructive advice, Thanks
>in advance for your help
>

>Regards
>
>David

http://www.wia.org.au/armag/2002/AR_Nov02_YagiBoomCorrectionFactors.pdf

2893. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:00:42 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <eelSf.571504$qk4.315582@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63004

Cecil Moore wrote:
> "Gene Fuller" <W4SZzzzzzz@att.net> wrote:
>
>>Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen
>>again.
>
>
> So how can a signal, devoid of phase, be used to measure the phase
> shift through a loading coil?
>
>
>>The only "phase" remaining is the cos (kz) term, which is really an
>>amplitude description, not a phase.
>
>
> How can one make a phase measurement using only the amplitude
> of a signal?
> --
> 73, Cecil, W5DXP
>
>

Cecil,

The phase is uniformly zero, so the phase shift is also zero.

Your messages seem to imply that there is some sort of characteristic "phase shift" in a loading coil. Ain't so.

In the example of a standing wave antenna the phase shift is zero, both experimentally and theoretically. (Approximate. Real world conditions might cause small non-zero shifts.)

If you place this same loading coil in a traveling wave antenna you can undoubtedly measure some sort of phase shift. (Exact amount left as an exercise for the student.)

Bottom line: Any characteristic, such as phase, that explicitly depends on the wave nature of a signal needs to be referenced to that condition, not some arbitrary setup.

73,
Gene
W4SZ

2894. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:13:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jonhqbrpjea9@corp.supernews.com>
Source record: 63005

Gene Fuller wrote:
>
> Cecil,
>
> The phase is uniformly zero, so the phase shift is also zero.
>
> Your messages seem to imply that there is some sort of characteristic
> "phase shift" in a loading coil. Ain't so.
>
> In the example of a standing wave antenna the phase shift is zero, both
> experimentally and theoretically. (Approximate. Real world conditions
> might cause small non-zero shifts.)
>
> If you place this same loading coil in a traveling wave antenna you can
> undoubtedly measure some sort of phase shift. (Exact amount left as an
> exercise for the student.)
>
> Bottom line: Any characteristic, such as phase, that explicitly depends
> on the wave nature of a signal needs to be referenced to that condition,
> not some arbitrary setup.
>

It's likely that quite a number of people don't realize that there's no phase shift of current or voltage along a short or open circuited lossless transmission line -- except for, like on an antenna, periodic polarity reversals.

Roy Lewallen, W7EL

2895. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:23:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <HzlSf.47865$F_3.25854@newssvr29.news.prodigy.net>
Source record: 63006

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:..
> Your messages seem to imply that there is some sort of characteristic
> "phase shift" in a loading coil. Ain't so.

Thanks, Gene. What was implied is what has been reported as fact
by others - that the zero phase shift on both ends of a loading coil
measures the delay through the coil to be close to zero.

> In the example of a standing wave antenna the phase shift is zero, both
> experimentally and theoretically. (Approximate. Real world conditions
> might cause small non-zero shifts.)

Please note that the phase shift in the wire is also zero. That the phase
shift is measured to be zero in a coil or a wire in a standing wave
environment is not of any practical importance whatsoever.

> If you place this same loading coil in a traveling wave antenna you can
> undoubtedly measure some sort of phase shift. (Exact amount left as an
> exercise for the student.)

That was the discussion involving Dr. Corum's papers and the VF of
large RF inductors, like a 75m bugcatcher coil.
--
73, Cecil, W5DXP

2896. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:27:47 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <DDlSf.47870$F_3.13334@newssvr29.news.prodigy.net>
Source record: 63007

"Roy Lewallen" <w7el@eznec.com> wrote:
> It's likely that quite a number of people don't realize that there's no
> phase shift of current or voltage along a short or open circuited
> lossless transmission line -- except for, like on an antenna, periodic
> polarity reversals.

If we have 45 degrees of transmission line and measure no phase
shift at each end of that 45 degrees, does that mean the transmission
line is really zero degrees long?

If we have an unknown number of degrees of coil and measure
no phase on each side of the coil, does that mean the coil is
really zero degrees long?
--
73, Cecil, W5DXP

2897. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:51:45 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <5_ISf.571648$qk4.401354@bgtnsc05-news.ops.worldnet.att.net>
Source record: 63008

Cecil,

You're a sly one, but not quite sly enough. 8-) 8-)

What is the meaning of "delay" in a standing wave antenna? Delay, like phase, depends on the environment.

The measurement results reported by W8JI a few days ago stand on their own. He described the setup and measurements adequately.

If you choose to make extrapolations to another environment, have at it. Just don't expect anyone else to automatically agree with your extrapolations.

As I recall, this three-year saga started with consideration of a loaded mobile antenna, which I believe would be considered a standing wave antenna. Have you since equipped your steed with a Beverage or rhombic? Are phase shifts and delays now important?

73,
Gene
W4SZ

Cecil Moore wrote:
> "Gene Fuller" <W4SZzzzzzz@att.net> wrote:..
>
>>Your messages seem to imply that there is some sort of characteristic
>>"phase shift" in a loading coil. Ain't so.
>
>
> Thanks, Gene. What was implied is what has been reported as fact
> by others - that the zero phase shift on both ends of a loading coil
> measures the delay through the coil to be close to zero.
>
>
>>In the example of a standing wave antenna the phase shift is zero, both
>>experimentally and theoretically. (Approximate. Real world conditions
>>might cause small non-zero shifts.)
>
>
> Please note that the phase shift in the wire is also zero. That the phase
> shift is measured to be zero in a coil or a wire in a standing wave
> environment is not of any practical importance whatsoever.
>
>
>>If you place this same loading coil in a traveling wave antenna you can

>>undoubtedly measure some sort of phase shift. (Exact amount left as an
>>exercise for the student.)
>
>
> That was the discussion involving Dr. Corum's papers and the VF of
> large RF inductors, like a 75m bugcatcher coil.
> --
> 73, Cecil, W5DXP
>
>

2898. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 22:57:42 UTC
From: w8ji@akorn.net
Message-ID: <1142549862.793446.236090@v46g2000cwv.googlegroups.com>
Source record: 63009

Cecil Moore wrote:
> > What was the indicator? What was the coupling device?

> I have an assortment of toroids of various materials from Amidon. I'm
> at work right now and I don't remember if I used 43 or F material.

How did you construct the coupling transformer? How did you make it
immune to electric fields?

> > On six meters, it would take a darned small probe and indicator to not
> > greatly perturb the system.
>
> They are small toroids. I chose 6m because the dipole area was
> physically small.

They may be small toroids, but what do they connect to? What is the
common mode impedance of the indicator at 50MHz?

> > If I was going to test something like this, I'd use a small indicator
> > hanging from the antenna and do it on a low frequency.
>
> Please feel free to make that measurement. W7EL just reported that
> EZNEC agrees with my phase measurements. So does Kraus.

You may not have been measuring anything like you think, in particular
voltage. Just because EZnec agrees with the phase measurements it
doesn't mean the current measurement was even remotely close to being
correct.

> > So, tell us about the probe and indicator.
>
> Similar to the ones W7EL used. They were calibrated within one turn
> of each other. The signals at the ends of the coax lines were calibrated
> for equality in magnitude and phase. Magnitudes are a relative measurement
> but phase was not. I ran the experiment two ways.

I you hung coaxial lines off a current transformer on a 6-meter dipole
down to some test instrument, you wasted a lot of time. There isn't any
possible way you measured an unperturbed system.

You'd better reconfigure as a monopole, and do it on a lower frequency.

> One was Lissajous figures on my 100 MHz Leader. The other was putting
> the two samples in opposite phase to each other, i.e. phasor subtraction.
> For small angles, the angle is equal to the sine of the angle so the
> addition
> of two coherent sine waves yields an amplitude proportional to the phase

> difference when the phase difference is small. The phase difference was
> so small it was virtually undetectable.

I wouldn't trust that system at all.

Even with the equipment I have and having build hunderds of sampling systems, I'd never attempt a measurement like you just made.

You brought a pair of long coaxial lines that are grounded at the far end up to within an inch of the antenna, hung what amounts to being a capacitor between the high voltage high impedance side of the antenna to ground, and presumed to measure voltage and current on six meters!

You can get away with a toroid on 80 or 40 meters if the test gear and lines are all near ground potential along with the point of the antenna you are measuring, but it is really off the wall to assume you can hang a toroid on a dipole past a loading coil, have that toroid connect to a cable hanging in air down to some test gear, and not severely perturb the system. Worse yet, the test was done on 50MHz!

I used a very small floating probe with NO earth path and the indicator right on the probe. I had to do that to not perturb the system on 40 and 80 meters. I can't imagine trying to do what I did on six meters, I'd have needed an entire metering system the size of a half-dollar or smaller.

Making a measurement at the base of a vertical on a low frequency like Roy did allows the person making the measurement to get away with lots of things, but I can tell you right now I'd NEVER be able to measure anything in a short mobile antenna if I ran cables up to the probes, in particular if I made the test on six meters!

73 Tom

2899. Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:06:10 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvcr12kim1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63010

ALL coils are distributed in space. They have a conductor. Therefore they can be analysed in the same manner as transmission lines.

They ARE transmission lines, no matter what length. They can't help it!

Program COILINE demonstrates how a simple coil-loaded vertical antenna can be designed by using classical transmission line mathematics.

Enter length, diameter and number of turns on the coil, the length of the top rod or whip or wire, and you can examine how the thing behaves at any frequency. You can design anything from a bottom loaded long wire to a helical for 160 metres.

Coils can vary between a few turns on an empty toilet roll tube to a 4 feet long, 1 inch diameter, plastic pipe wound with 1000 turns.

You can prune the whip to obtain resonance at a given frequency without having to go out in the freezing cold back yard.

Discover the velocity factor, nano-seconds per meter, and other numbers for your particular coil. All will be of interest to the participants in the interminable civil war still raging on another thread. Ammunition galore!

Download program COILINE from website below and run immediately. Only 47 kilo-bytes. Its quite entertaining.

By the way, it has just occurred to me, I forgot to include coil Q in the results. But it hardly matters - there's little to be done with the number even if you know it.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

2900. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:08:54 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142550534.599921.43100@j33g2000cwa.googlegroups.com>
Source record: 63011

Well the main thing I was unaware of is skin depthis basically non existant if the
conductori is less than two skin depths i,e,one skin depth each side and I find that inportant. So I now get to the next question, can one compensate for radiation purposes
by increasing the width of this aluminum skine to compensate for lack of material thickness? Looking at it a different way, instead of having a dipole with ithin wire
I use aluminum metalised sheet about 12 inches wide but with a skin depth of onre tenth
of the skin depth required for 180 meters.(say skin depth for 180 meters is 1 mil and the material i am using is only one tenth of a mil)
As you can see I recognise that skin depth
must also be looked at in square mills for current carrying capabilities. for an equivalent frequency range similar to when one uses litz wire.
Put another way, can on use conductors one tenth of the thiknes of litz wire and increase the number of strands used by ten times to maintain the same crossectional area but composed of strands of the skin thickness norm for the frequency of use?
As an aside skin depth also means contra flow levels of current flow is this non existant
where skin depth is lacking. Hard for me to fully understand skin depth when I take more than a cursury look.and where a little knowelenge becomes a danger!
Art

2901. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:18:12 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <tJadnVRh5fhDbYTZnZ2dnUVZ_sydnZ2d@adelphia.com>
Source record: 63012

Reg Edwards wrote:
(snip)
> By the way, it has just occurred to me, I forgot to include coil Q in
> the results. But it hardly matters - there's little to be done with
> the number even if you know it.

Thanks.

But what about comparing different ways of obtaining the same
inductance to find those with higher or lower Q?

2902. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:25:12 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121jsuqafmpqgfb@corp.supernews.com>
Source record: 63013

art wrote:
> Well the main thing I was unaware of is skin depthis basically non
> existant if the
> conductori is less than two skin depths i,e,one skin depth each side
> and I find that inportant. So I now get to the next question, can one
> compensate for radiation purposes
> by increasing the width of this aluminum skine to compensate for lack
> of material thickness?

You can compensate for the loss, yes, by increasing the surface area. The way you reduce loss is to provide a large cross-sectional area for the current to flow through.

Looking at it a different way, instead of having
> a dipole with ithin wire
> I use aluminum metalised sheet about 12 inches wide but with a skin
> depth of onre tenth
> of the skin depth required for 180 meters.

This is the second time you've referred to a skin depth "requirement". I don't understand why the application requires a particular skin depth. If you need a particular skin depth at a particular frequency, the only way to get it is to alter the conductivity of the material.

(say skin depth for 180
> meters is 1 mil and the material i am using is only one tenth of a mil)

If that is the case, then you can forget about skin depth and treat the problem as though it were DC, because the current will be essentially uniformly distributed through the conductor as it is at DC.

> As you can see I recognise that skin depth
> must also be looked at in square mills for current carrying
> capabilities. for an equivalent frequency range similar to when one
> uses litz wire.

I don't understand this. Litz wire functions in its special way only up to a few MHz. Skin effect occurs at all frequencies.

> Put another way, can on use conductors one tenth of the thiknes of litz
> wire and increase the number of strands used by ten times to maintain
> the same crossectional area but composed of strands of the skin
> thickness norm for the frequency of use?

Sorry, I don't understand the question. You should be able to find ample information about Litz wire on the web.

> As an aside skin depth also means contra flow levels of current flow is
> this non existant
> where skin depth is lacking.

?

Hard for me to fully understand skin depth
> when I take more than a cursury look.and where a little knowelenge
> becomes a danger!

It's really fairly simple. Nearly any electromagnetics text does a good job of explaining it.

Litz wire is a good deal more complicated, though, since its operation depends on more than skin effect. I imagine that a rigorous mathematical treatment has been done on it, but I'll bet it's not simple.

Roy Lewallen, W7EL

2903. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:39:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <BGmSf.1846$tN3.210@newssvr27.news.prodigy.net>
Source record: 63014

Gene Fuller wrote:
> What is the meaning of "delay" in a standing wave antenna?

Same as in a traveling wave antenna - the length of
time it takes a traveling wave signal to make it through
a coil or a wire. The lumped-circuit model assumes that
delay is equal to zero even for traveling wave antennas.

> Delay, like phase, depends on the environment.

I defined what I meant by "delay" through a coil a few days
ago. It was the delay experienced by a traveling wave
flowing through a coil or 1/2 the delay experienced by
a traveling wave making a round trip to the end of a coil
and back based on the self-resonant frequency. That's what
the velocity factor calculations were all about. Does the
0.66 velocity factor disappear when RG-8 is used as a stub?
Then neither does the 0.0175 coil velocity factor disappear
when it is used in a standing wave environment.

The cos(kz)*cos(wt) nature of the standing wave current
prohibits that standing wave current from being used to
determine the velocity factor of a coil or of a wire. The
lumped-circuit model assumes the velocity factor through
any and every coil to be *greater than unity*.
--
73, Cecil http://www.qsl.net/w5dxp

2904. Re: compact antenna for short range direction finding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-16 23:41:17 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142552477.603813.237860@i39g2000cwa.googlegroups.com>
Source record: 63015

Assuming that the signal you're trying to track isn't moving around too quickly, and is "on" for relatively long times, I'd suggest a simple Yagi antenna connected to a receiver with a signal strength indicator. Rotate the antenna till the signal peaks; the antenna points in the direction of the strongest signal (usually the direction of the transmitter).

You can find Yagi design info on the web. Do a Google search for it. I'd suggest something modest, like 3 to 5 elements. The elements will be about half a wavelength long, which at 870MHz is about 1/6 of a meter or about seven inches. The whole Yagi might be a foot long. You can easily make it using PVC pipe and pipe fittings, and elements made from heavy copper wire. Be careful about having the feedline decoupled from the antenna so that the directionality of the antenna is not messed up by the feed line picking up signals.

Another poster suggested what I suppose is a Doppler scanning antenna, an array of elements switched with PIN diodes, but the complications of building such a system probably outweigh its advantages for what you want to do, unless you're going to be doing a LOT of direction-finding. Besides the PIN-switched elements, you need control/display electronics and an FM receiver.

Cheers,
Tom

2905. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 00:01:10 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <a%mSf.1852$tN3.1215@newssvr27.news.prodigy.net>
Source record: 63016

w8ji@akorn.net wrote:
> Just because EZnec agrees with the phase measurements it
> doesn't mean the current measurement was even remotely
> close to being correct.

I officially withdraw my measurements as evidence in this debate and instead substitute the EZNEC results, provided by W7EL, as evidence.

What does it mean that EZNEC agrees with my possibly flawed phase measurements? What does it mean that EZNEC agrees with my argument and disagrees with yours?

How does one use a signal with unchanging phase to measure the phase shift through a coil or wire? Forgive me if I'm wrong, but seems to me, you have claimed to have done exactly that. Please explain how you did that so we can judge whether your measurements were also flawed.
--
73, Cecil http://www.qsl.net/w5dxp

2906. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 00:02:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <F0nSf.1853$tN3.122@newssvr27.news.prodigy.net>
Source record: 63017

Reg Edwards wrote:
> Discover the velocity factor, nano-seconds per meter, and other
> numbers for your particular coil.

Reg, would you care to share your formula for velocity factor?
--
73, Cecil http://www.qsl.net/w5dxp

2907. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 00:21:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvcvf1$k3q$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63018

> But what about comparing different ways of obtaining the same
> inductance to find those with higher or lower Q?

==========

To double Q, whatever it is, just double length and diameter of the coil, wind on a number of turns of much thicker wire for the same inductance, and Bingo, Q is doubled. The value of Q is unecessary.

Efficiency and bandwidth can be deduced by calculating from the known values of wire and radiation resistances. But I suppose Q, once available, would be a short cut to crudely estimating bandwidth. Additional information is needed.

The loss in the coil may not be the dominating factor. What matters is the System Q. It can be considerably worse than coil Q.

Reg.

2908. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 00:41:03 UTC
From: w8ji@akorn.net
Message-ID: <1142556063.774604.35640@v46g2000cwv.googlegroups.com>
Source record: 63019

Cecil Moore wrote:
> I officially withdraw my measurements as evidence in this
> debate and instead substitute the EZNEC results, provided
> by W7EL, as evidence.
>
> What does it mean that EZNEC agrees with my possibly
> flawed phase measurements? What does it mean that EZNEC
> agrees with my argument and disagrees with yours?
>
> How does one use a signal with unchanging phase to measure
> the phase shift through a coil or wire? Forgive me if I'm
> wrong, but seems to me, you have claimed to have done
> exactly that. Please explain how you did that so we can
> judge whether your measurements were also flawed.

I expected you would want to discuss the problems of making a measurement in the high impedance part of an antenna with a toroid around the wire and a coaxial cable running down to a 100MHz scope on 50Mhz.

I see now you really only want to spew, and have no desire to learn anything.

I took the time to carefully outline what Roy's measurements and mine would be significantly more reliable, and I see you disregarded that also.

I'm very disappointed in your reaction to the effort I made to help you understand measurement techniques.

73 Tom

2909. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:12:38 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvd2e6$qt7$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 63020

```
>
> Reg, would you care to share your formula for velocity factor?
========================================

Cec, can't you find it in your bibles?

Velocity = 1 / Sqrt( L * C) metres per second

where L and C are henrys and farads per metre.

What you really want to know is how to calculate L and C from coil
dimensions. But you won't find that from any bible.

As a special favour, I'll attach the source code for the program to an
e-mail. Read it with a non-proportional text editor such as Notepad.

In your discussions on the other thread you have mentioned a coil's
self-resonant frequency. In the source code you will also find a
formula for Fself. Which, again, cannot be found in any bible. It is
a fairly straightforward 2 or 3-line formula.

Fself is not used anywhere in the program. It is available solely out
of interest. It is fairly accurate. I have measured it on many coils
of all proportions and numbers of turns from 1 inch to 6 feet long
with 1500 turns.
----
Reg, G4FGQ
```

2910. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:13:32 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142558012.295624.174830@e56g2000cwe.googlegroups.com>
Source record: 63021

Thanks for the quick response
I have not seen mention in any books that skin effect can be ignored in
some cases which was good info.
You confirm what now can be seen as tuintive that what initial was a
depth/area definition can also be seen as a
volume question which rearly was the reason for the posting.The only
reason I used the Litz wire scenario
was because I recocognise that some had diffuctu with
the originak question that I tried to put numbers with it.
A follow up qurestion would now be if an element was
made of a skin fashioned from aluminised mylar using a comparitive
aluminum volume aproach would any changes in radiation efficiency
weould occur?
As a side note the contra current flow that I refferred to
was what it appears various straas of current flow that one sees
illustrated in text books would change radiation
as one aproaches a sigle strata where their is no contra flow, but let
us put that aside for another day.
As another aside I have made an apparatus where I have placed to
parallel wires inside a glass tube (flourescnt
lamp tube where I can draw a vacuum with some dust inside the tube so
the point of static flow can be observed
and then observe the cross over point when using thin
aluminised strip in the hope that for the same frequency
the same cross over point will be seen as the same.
Best regards
Art

2911. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:24:36 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <odoSf.1875$tN3.1096@newssvr27.news.prodigy.net>
Source record: 63022

w8ji@akorn.net wrote:
> I took the time to carefully outline what Roy's measurements and mine
> would be significantly more reliable, and I see you disregarded that
> also.

You demanded that I defend my measurements so I removed them
as evidence. Now I am requesting that you defend the use of a
signal without phase to measure phase through a coil. That's
a very simple request. If one refuses such a simple request
to defend one's methods, what is one to think?

I gave up on my measurements rather than defend them. If you
don't defend yours, are you automatically giving up on them?
If no, one might then wonder why you require me to defend my
measurements while you refuse to defend yours.

Gene says standing wave current doesn't carry any phase
information. I concur. Roy says EZNEC agrees with my possibly
flawed measurements. I concur. Since EZNEC disagrees with your
conclusions about your measurements, and agrees with my conclusion
about your measurements, could your conclusions possibly be
flawed? I'm sure many readers would be interested in a
detailed explanation of exactly how to use a signal with
unchanging phase to measure the phase shift through a coil.
I certainly would be more interested in that explanation
than a boring tutorial on measurement techniques. Heck, even
the IEEE would be interested in such a unique technique and
it might even be patentable.

You could start by explaining the center graphic in the following:

http://www.qsl.net/w5dxp/3freq.gif

One can't help but notice your absolute silence on that subject.

> I'm very disappointed in your reaction to the effort I made to help you
> understand measurement techniques.

<humor> Reminds me of a T-shirt I saw. It read, "I'm from the
government. I'm here 'to help you'." </humor>

Logical diversions are very transparent - they even have names.
That one is called "diverting the issue". The issue is not my
measurements since I have withdrawn them as evidence. Seems
that automatically makes your measurements the subject of the
discussion.
--

73, Cecil http://www.qsl.net/w5dxp

2912. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:34:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <VmoSf.1876$tN3.1699@newssvr27.news.prodigy.net>
Source record: 63023

Reg Edwards wrote:
> Velocity = 1 / Sqrt(L * C) metres per second

Well now, W7EL, a pretty smart fellow questioned that equation,
as I remember before a bottle of CA Sutter Home Cabernet Sauvignon,
circa 2001. (Not bad for a 5 year old red.)

Dr. Corum's equation is a mite more complicated involving
fractional powers of diameter, turns per inch, and wavelength
and it closely agreed with my self-resonant measurements.

If we work backwards from Dr. Corum's fairly accurate
VF, can we calculate the L and C of the coil?
--
73, Cecil http://www.qsl.net/w5dxp

2913. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:43:00 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121k5168d8svq85@corp.supernews.com>
Source record: 63024

Reg Edwards wrote:
>> Reg, would you care to share your formula for velocity factor?
> ==
>
> Cec, can't you find it in your bibles?
>
> Velocity = 1 / Sqrt(L * C) metres per second
>
> where L and C are henrys and farads per metre.
>
> What you really want to know is how to calculate L and C from coil
> dimensions. But you won't find that from any bible.

>. . .

What seems to be getting lost in the discussion is that L is *series* L per meter and C is *shunt* C per meter -- that is, the C to another conductor(*). C is not the self-capacitance of the inductor.

(*) Conductors also have capacitance to free space, but I'm not at all sure the transmission line equations for such things as velocity are valid if this is used for C. The equation for the resonant length of a wire in space is very complex and can't be solved in closed form, and even approximate formulas are much more complex than those for transmission lines. So while transmission lines and antennas -- or radiating inductors -- share some characteristics, you can't blindly apply the equations for one to the other and expect valid results.

Roy Lewallen, W7EL

2914. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:48:30 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121k5bftea4vl3f@corp.supernews.com>
Source record: 63025

art wrote:
>. . .
> A follow up qurestion would now be if an element was
> made of a skin fashioned from aluminised mylar using a comparitive
> aluminum volume aproach would any changes in radiation efficiency
> weould occur?

I can't answer that one because it makes no sense to me. Maybe someone else can give it a shot.

> As a side note the contra current flow that I refferred to
> was what it appears various straas of current flow that one sees
> illustrated in text books would change radiation
> as one aproaches a sigle strata where their is no contra flow, but let
> us put that aside for another day.

Guess I missed that posting. Current isn't stratified in a homogeneous conductor. But it sounds like some good stuff to use in explaining why some antenna or other has magical properties that have defied all the conventional thinkers for generations.

> As another aside I have made an apparatus where I have placed to
> parallel wires inside a glass tube (flourescnt
> lamp tube where I can draw a vacuum with some dust inside the tube so
> the point of static flow can be observed
> and then observe the cross over point when using thin
> aluminised strip in the hope that for the same frequency
> the same cross over point will be seen as the same.

That makes no sense to me either. Time to pass the baton to someone who can understand what you're saying.

Roy Lewallen, W7EL

2915. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 01:53:18 UTC
From: w8ji@akorn.net
Message-ID: <1142560398.111011.181380@i39g2000cwa.googlegroups.com>
Source record: 62876

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > I took the time to carefully outline what Roy's measurements and mine
> > would be significantly more reliable, and I see you disregarded that
> > also.
>
> You demanded that I defend my measurements so I removed them
> as evidence. Now I am requesting that you defend the use of a
> signal without phase to measure phase through a coil. That's
> a very simple request. If one refuses such a simple request
> to defend one's methods, what is one to think?

I didn't demand anything. I asked what equipment and frequency you
used.
When you told me, it became very obvious you could have made a much
more reliable measurement.

I'm suprised you wouldn't want to learn more about measurements.

I don't see anything Roy said that disagrees with what I measured, so
that's a non-issue.

I take it you don't want to discuss how to make better measurements?

73 Tom

2916. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:01:03 UTC
From: w8ji@akorn.net
Message-ID: <1142560863.044161.15920@u72g2000cwu.googlegroups.com>
Source record: 62877

Cecil Moore wrote:

> You could start by explaining the center graphic in the following:
> http://www.qsl.net/w5dxp/3freq.gif

I don't understand what it is and how you "constructed" it. Maybe you can explain.

Did you build one and verify the results? I've never seen a coil loaded antenna work on three exactly even harmonics without special manipulation of lengths. That would make an interesting antenna if you could just make it any length and any coil and have it work on harmonics.

73 Tom

2917. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:14:25 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <e5qdnd0f5M6xh4fZRVn-gg@adelphia.com>
Source record: 62878

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> Just because EZnec agrees with the phase measurements it
>> doesn't mean the current measurement was even remotely
>
> > close to being correct.
>
> I officially withdraw my measurements as evidence in this
> debate and instead substitute the EZNEC results, provided
> by W7EL, as evidence.
>
> What does it mean that EZNEC agrees with my possibly
> flawed phase measurements? What does it mean that EZNEC
> agrees with my argument and disagrees with yours?
>
> How does one use a signal with unchanging phase to measure
> the phase shift through a coil or wire? Forgive me if I'm
> wrong, but seems to me, you have claimed to have done
> exactly that. Please explain how you did that so we can
> judge whether your measurements were also flawed.

Doesn't the change in distance between a pair of current nodes (or voltage nodes) in the standing wave pattern on a straight conductor that straddle an inserted inductor show its effective electrical length? I would think that as long as a fairly pure standing wave could be arranged with the inductor inside it, this method would allow the effective electrical length to be measured at arbitrary frequencies that are not at all related to the coil's self resonant frequency. It seems that this is nearly what you are demonstrating with your EZNEC examples. Electrical length (propagation distance) is collapsing into the inductor.

2918. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:17:25 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <e5qdndwf5M5Ch4fZRVn-gg@adelphia.com>
Source record: 62879

Roy Lewallen wrote:
(snip)
> You can compensate for the loss, yes, by increasing the surface area.
> The way you reduce loss is to provide a large cross-sectional area for
> the current to flow through.

The problems I have with this approach is that the larger conductor
(only the outside of which is contributing to conductivity) is
blocking the path of more and more flux, crowding it into the space
that is left. It is a matter of gaining some and losing some
(hopefully less).

2919. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:20:13 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <x1pSf.572473$qk4.482287@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62880

Cecil,

I have to admit I am mostly lost about the meaning in your post below.

However, nothing in my comments was intended in any way as support or denial of the measurements presented by Tom, W8JI. They look proper to me, but I am not an expert on such measurements.

This entire thread is quite bizarre in that all sorts of special cases are being debated (Tesla coils????) while the simplest basic level of standing wave behavior is overlooked and even challenged.

I suppose that's typical for RRAA.

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> I took the time to carefully outline what Roy's measurements and mine
>> would be significantly more reliable, and I see you disregarded that
>> also.
>
>
> You demanded that I defend my measurements so I removed them
> as evidence. Now I am requesting that you defend the use of a
> signal without phase to measure phase through a coil. That's
> a very simple request. If one refuses such a simple request
> to defend one's methods, what is one to think?
>
> I gave up on my measurements rather than defend them. If you
> don't defend yours, are you automatically giving up on them?
> If no, one might then wonder why you require me to defend my
> measurements while you refuse to defend yours.
>
> Gene says standing wave current doesn't carry any phase
> information. I concur. Roy says EZNEC agrees with my possibly
> flawed measurements. I concur. Since EZNEC disagrees with your
> conclusions about your measurements, and agrees with my conclusion
> about your measurements, could your conclusions possibly be
> flawed? I'm sure many readers would be interested in a
> detailed explanation of exactly how to use a signal with
> unchanging phase to measure the phase shift through a coil.
> I certainly would be more interested in that explanation

> than a boring tutorial on measurement techniques. Heck, even
> the IEEE would be interested in such a unique technique and
> it might even be patentable.
>
> You could start by explaining the center graphic in the following:
>
> http://www.qsl.net/w5dxp/3freq.gif
>
> One can't help but notice your absolute silence on that subject.
>
>> I'm very disappointed in your reaction to the effort I made to help you
>> understand measurement techniques.
>
>
> <humor> Reminds me of a T-shirt I saw. It read, "I'm from the
> government. I'm here 'to help you'." </humor>
>
> Logical diversions are very transparent - they even have names.
> That one is called "diverting the issue". The issue is not my
> measurements since I have withdrawn them as evidence. Seems
> that automatically makes your measurements the subject of the
> discussion.

2920. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:41:45 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <JlpSf.1520$4L1.934@newssvr11.news.prodigy.com>
Source record: 62881

w8ji@akorn.net wrote:
> I'm suprised you wouldn't want to learn more about measurements.

I'm surprised you wouldn't want to share your engineering
knowledge, e.g. is it really possible to use a phaseless
signal to measure phase shift? If so, please enlighten us.
I can't figure out how to do it. Since you apparently have
figured it out, please share your knowledge with us.

> I don't see anything Roy said that disagrees with what I measured, so
> that's a non-issue.

Roy and I have previously agreed with your measurements. It's
your conclusions about those measurements that he apparently
doesn't seem to understand and neither do I. I'm certainly not
speaking for Roy, but when he points out to you that my
measurements agree with EZNEC, one wonders what that means
in reality.

> I take it you don't want to discuss how to make better measurements?

I take it you don't want to share you knowledge of how to
measure phase using a phaseless signal? Such a feat is
extremely more important than any measurement discussion.

Please just explain from a technical standpoint how a
signal without phase can be used to measure a phase
shift through a coil. That's an extremely simple request
and would be extremely useful to the entire group.

While you are at it, please explain the EZNEC results
in the middle graphic at: http://www.qsl.net/w5dxp/3freq.gif.
the request for which you seem to have forgotten about.
--
73, Cecil http://www.qsl.net/w5dxp

2921. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:49:32 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <0tpSf.1521$4L1.395@newssvr11.news.prodigy.com>
Source record: 62882

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>You could start by explaining the center graphic in the following:
>>http://www.qsl.net/w5dxp/3freq.gif
>
> I don't understand what it is and how you "constructed" it. Maybe you
> can explain.

I simulated a typical vertical base-loaded coil system using the
helical coil feature of EZNEC. I found the resonant frequency and
displayed the results in the left graphic. I then left everything
else alone while I multiplied the resonant frequency by 2 and
displayed the results in the middle graphic. I then multiplied the
resonant frequency 3 and displayed the results in the right graphic.
It's a no-brainer. Have you never done such with EZNEC?

Would someone, somewhere, please explain the ~0.2 amps at the
bottom of the coil in the middle configuration Vs the ~2.0
amps at the top of the coil? Is EZNEC reporting bogus results?
--
73, Cecil http://www.qsl.net/w5dxp

2922. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:52:56 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvd8a8klm1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62883

L and C are neither in series or in parallel with each other.

They are both DISTRIBUTED as in a transmission line.

To calculate the self-resonant frequency what we are looking for is an equivalent shunt capacitance across the ends of the inductance.

Turn to turn capacitance is is a very small fraction of the total capacitance. If there are 10 turns then there are 10 turn-to-turn capacitances all in series. After a few turns there is very little capacitance which can be considered to be across the coil.

Consider two halves of the coil. We have two large cylinders each of half the length of the coil. Diameter of the cylinders is the same as coil diameter. Nearly all the capacitance across the coil is that due to the capacitance between the two touching cylinders (excluding their facing surfaces).

The formula for VF is true for any transmission line with distributed L and C. And a coil has distributed L and C.

Agreed, L and C are approximations for very short fat coils. But any approximation is far better than none at all. All antennas have to be pruned at their ends.

Reg.
"Roy Lewallen" wrote

> Velocity = 1 / Sqrt(L * C) metres per second
> >
> > where L and C are henrys and farads per metre.
> >
> What seems to be getting lost in the discussion is that L is
series L
> per meter and C is *shunt* C per meter -- that is, the C to another
> conductor(*). C is not the self-capacitance of the inductor.
>
> (*) Conductors also have capacitance to free space, but I'm not at
all
> sure the transmission line equations for such things as velocity are
> valid if this is used for C. The equation for the resonant length of
a
> wire in space is very complex and can't be solved in closed form,
and
> even approximate formulas are much more complex than those for
> transmission lines. So while transmission lines and antennas -- or

> radiating inductors -- share some characteristics, you can't blindly
> apply the equations for one to the other and expect valid results.
>
> Roy Lewallen, W7EL

2923. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:54:25 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <BxpSf.1523$4L1.959@newssvr11.news.prodigy.com>
Source record: 62884

John Popelish wrote:
> It seems
> that this is nearly what you are demonstrating with your EZNEC
> examples. Electrical length (propagation distance) is collapsing into
> the inductor.

Please explain how that could be possible with constant
magnitude and phase of the currents through the coil.
The magnitude and phase is absolutely constant according
to the presuppositions of the lumped-circuit model. How
could it possibly collapse?
--
73, Cecil http://www.qsl.net/w5dxp

2924. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:58:13 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <9BpSf.1524$4L1.426@newssvr11.news.prodigy.com>
Source record: 62886

Gene Fuller wrote:
> However, nothing in my comments was intended in any way as support or
> denial of the measurements presented by Tom, W8JI. They look proper to
> me, but I am not an expert on such measurements.

How about his conclusions about those measurements?
Maybe you can help him out. How does one measure the
phase shift through a coil using a signal that doesn't
support phase? If there is a way, I and others would
certainly like to know about it. So far, I confess
that I haven't been able to figure it out.
--
73, Cecil http://www.qsl.net/w5dxp

2925. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 02:58:16 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <441a25ca$0$7322$39cecf19@news.twtelecom.net>
Source record: 62885

Cecil Moore wrote:

> Reg Edwards wrote:
>
>> A 100 turn coil, 10 inches long, 2 inches in diameter, has an
>> inductance of 102 microhenrys, a Q of aproximately 380 at F = 1.9 MHz,
>> and the self-resonant frequency is 12.0 MHz.
>
>
> I'll bet the measured self-resonant frequency would be lower
> if mounted as a base-loading coil on my pickup.
>
> Seems the VF of the coil is 0.041 based on 10" being 1/4WL
> at 12 MHz. Assuming that VF holds down to 1.9 MHz we
> can calculate the electrical length of the coil on 1.9 MHz
> which will be the same as the phase shift through the coil.
>
> So I get about ~14 degrees of phase shift through that coil
> at 1.9 MHz assuming the self-resonant frequency really
> is 12 MHz at the spot where the coil is mounted.
>
> If the coil were used on 3.8 MHz, the phase shift would
> be ~28 degrees.
>
> But my 75m bugcatcher coil shows to be self-resonant at
> 6.6 MHz while sitting there on my pickup being driven
> by an MFJ-259B. It is 6.5" long. When 6.5" is 1/4WL
> at 6.6 MHz, the VF = 0.0145, considerably lower than
> the coil above and operating much closer to its self-
> resonant frequency.
>
> A length of 6.5" coil with a VF of 0.145 on 4 MHz is
> ~55 degrees of phase shift. And indeed the net current
> at the top of the coil drops to about 2/3 of what it
> is at the bottom.

Ok, I have had a thought. And I had to go back to where everyone, starting with Cecil, was talking about or responding to a constant delay through the coil.

Picking a nice round number, say 55 degrees, I would then need 35 degrees of whip above that coil to make a quarter wave resonant antenna, correct?

So, it should work just as well, using Cecil's reasoning, if I displace that coil to another position. He did measure the coil as a standalone device which causes a fixed delay, correct?

Ok, so now I move that coil up the antenna, not much, say 2 degrees. Now I have 2 degrees below the coil, and 33 above it. It will still be resonant, right? Now I move it another 2, and another and another, until it it at the top, with no stinger. With the reasoning I have heard from Cecil, it will always be resonant.

tom
K0TAR

2926. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:08:45 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <uYSdnRIvZZZ1u4fZRVn-pA@adelphia.com>
Source record: 62887

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> Cecil Moore wrote:
>>
>>> You could start by explaining the center graphic in the following:
>>> http://www.qsl.net/w5dxp/3freq.gif
>>
>>
>> I don't understand what it is and how you "constructed" it. Maybe you
>> can explain.
>
>
> I simulated a typical vertical base-loaded coil system using the
> helical coil feature of EZNEC. I found the resonant frequency and
> displayed the results in the left graphic. I then left everything
> else alone while I multiplied the resonant frequency by 2 and
> displayed the results in the middle graphic. I then multiplied the
> resonant frequency 3 and displayed the results in the right graphic.
> It's a no-brainer. Have you never done such with EZNEC?
>
> Would someone, somewhere, please explain the ~0.2 amps at the
> bottom of the coil in the middle configuration Vs the ~2.0
> amps at the top of the coil? Is EZNEC reporting bogus results?

It looks like various magnitudes that you would find at 2 points along
a standing wave, with various fractions of the wave in the inductor as
frequency changes. In spite of hitting these various magnitude
values, there are still only two phases, 0 or 180 anywhere outside the
coil. In some cases, the standing wave goes through a node, inside
the coil and reverses phase from one end of the coil to the other.

2927. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:12:42 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ov6dnXFjLPhIuofZnZ2dnUVZ_tudnZ2d@adelphia.com>
Source record: 62888

Cecil Moore wrote:
> John Popelish wrote:
>
>> It seems that this is nearly what you are demonstrating with your
>> EZNEC examples. Electrical length (propagation distance) is
>> collapsing into the inductor.
>
>
> Please explain how that could be possible with constant
> magnitude and phase of the currents through the coil.
> The magnitude and phase is absolutely constant according
> to the presuppositions of the lumped-circuit model. How
> could it possibly collapse?

Have I claimed that the lumped model strictly applies? ;-)

2928. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:19:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zVpSf.1528$4L1.147@newssvr11.news.prodigy.com>
Source record: 62889

Tom Ring wrote:
> Picking a nice round number, say 55 degrees, I would then need 35
> degrees of whip above that coil to make a quarter wave resonant antenna,
> correct?

No, that is a myth spread by some people as a strawman
argument. Please don't support that strawman.

The requirement for resonance at the feedpoint is that
the phasor sum of the forward and reflected voltages
be in phase with the phasor sum of the forward and
reflected currents. Therefore, 90 degrees is *NOT*
required in the round trip. Indeed, the round trip
for the voltage doesn't have to be the same number
of degrees as the round trip for the current. That is
a misconception spawned by the lumped-circuit model
where everything is perfect and waves travel faster
than the speed of light. The real world is not so
perfect.

Given that the resonant feedpoint impedance equals
(Vfor+Vref)/(Ifor+Iref) isn't it obvious that the
individual components are not required to have the
same phase? For instance, Vfor could be at +50 degrees,
Vref could be at -40 degrees, Ifor could be at +20
degrees, Iref could be at -10 degrees, and the feedpoint
impedance would still be resistive.

The coil distorts the heck out of the phase relationships
between the voltages and the currents. Why is it surprising
that the result is unpredictable and needs an antenna
analyzer to find the resonant frequency? Factor in that
the lowest 50 ohm SWR may not be at the purely resistive
point and what do you have?
--
73, Cecil http://www.qsl.net/w5dxp

2929. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:24:34 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <SZpSf.1531$4L1.963@newssvr11.news.prodigy.com>
Source record: 62890

John Popelish wrote:
> It looks like various magnitudes that you would find at 2 points along a
> standing wave, with various fractions of the wave in the inductor as
> frequency changes. In spite of hitting these various magnitude values,
> there are still only two phases, 0 or 180 anywhere outside the coil. In
> some cases, the standing wave goes through a node, inside the coil and
> reverses phase from one end of the coil to the other.

Exactly! Now please explain how the nS delay through a coil
could possibly be measured using a signal that abruptly shifts
fixed phase by 180 degrees every 180 degrees.
--
73, Cecil http://www.qsl.net/w5dxp

2930. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:25:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121kb283v4krv87@corp.supernews.com>
Source record: 62891

Of course I understand that both L and C are distributed. But the C in the transmission line formula isn't a longitudinal C like the C across an inductor; it's the (distributed, of course) shunt C between the two conductors of the transmission line. I don't believe you can justify claiming that the C across an inductor is even an approximation for the C from the inductor to whatever you consider to be the other transmission line conductor.

Roy Lewallen, W7EL

Reg Edwards wrote:
> L and C are neither in series or in parallel with each other.
>
> They are both DISTRIBUTED as in a transmission line.
>
> To calculate the self-resonant frequency what we are looking for is an
> equivalent shunt capacitance across the ends of the inductance.
>
> Turn to turn capacitance is is a very small fraction of the total
> capacitance. If there are 10 turns then there are 10 turn-to-turn
> capacitances all in series. After a few turns there is very little
> capacitance which can be considered to be across the coil.
>
> Consider two halves of the coil. We have two large cylinders each of
> half the length of the coil. Diameter of the cylinders is the same as
> coil diameter. Nearly all the capacitance across the coil is that due
> to the capacitance between the two touching cylinders (excluding their
> facing surfaces).
>
> The formula for VF is true for any transmission line with distributed
> L and C. And a coil has distributed L and C.
>
> Agreed, L and C are approximations for very short fat coils. But any
> approximation is far better than none at all. All antennas have to be
> pruned at their ends.
> ----
> Reg.
> "Roy Lewallen" wrote
>
>> Velocity = 1 / Sqrt(L * C) metres per second
>>> where L and C are henrys and farads per metre.
>>>
>> What seems to be getting lost in the discussion is that L is
> *series* L
>> per meter and C is *shunt* C per meter -- that is, the C to another

>> conductor(*). C is not the self-capacitance of the inductor.
>>
>> (*) Conductors also have capacitance to free space, but I'm not at
> all
>> sure the transmission line equations for such things as velocity are
>> valid if this is used for C. The equation for the resonant length of
> a
>> wire in space is very complex and can't be solved in closed form,
> and
>> even approximate formulas are much more complex than those for
>> transmission lines. So while transmission lines and antennas -- or
>> radiating inductors -- share some characteristics, you can't blindly
>> apply the equations for one to the other and expect valid results.
>>
>> Roy Lewallen, W7EL
>
>

2931. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:26:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <o%pSf.1532$4L1.446@newssvr11.news.prodigy.com>
Source record: 62892

John Popelish wrote:

> Cecil Moore wrote:
>> Please explain how that could be possible with constant
>> magnitude and phase of the currents through the coil.
>> The magnitude and phase is absolutely constant according
>> to the presuppositions of the lumped-circuit model. How
>> could it possibly collapse?
>
> Have I claimed that the lumped model strictly applies? ;-)

No, but someone else has. ;-)
--
73, Cecil http://www.qsl.net/w5dxp

2932. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:30:44 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121kbb65cj0om31@corp.supernews.com>
Source record: 62893

John Popelish wrote:
> Roy Lewallen wrote:
> (snip)
>> You can compensate for the loss, yes, by increasing the surface area.
>> The way you reduce loss is to provide a large cross-sectional area for
>> the current to flow through.
>
> The problems I have with this approach is that the larger conductor
> (only the outside of which is contributing to conductivity) is blocking
> the path of more and more flux, crowding it into the space that is
> left. It is a matter of gaining some and losing some (hopefully less).

I'm sorry, I don't understand this. Can you elaborate? In what way does increasing a wire's diameter block the path of existing current and cause crowding? When a wire's diameter is at least many times the skin depth, the RF conductivity of the wire is directly proportional to the surface area of the wire, hence to its circumference or diameter. So in what way does this blocking and crowding manifest itself, and what would be the relationship between area and conductivity if it didn't occur?

Roy Lewallen, W7EL

2933. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:38:34 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvdavqets1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62894

Wanna bet?

The phase shift along the coil plus the phase shift along antenna conductors does NOT add up 90 degrees when the antenna is 1/4-wave resonant. It is not anywhere near to it.

2934. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:38:43 UTC
From: w8ji@akorn.net
Message-ID: <1142566723.768430.196020@p10g2000cwp.googlegroups.com>
Source record: 62895

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > I'm suprised you wouldn't want to learn more about measurements.
>
> I'm surprised you wouldn't want to share your engineering
> knowledge, e.g. is it really possible to use a phaseless
> signal to measure phase shift? If so, please enlighten us.
> I can't figure out how to do it. Since you apparently have
> figured it out, please share your knowledge with us.

I think you are the one with a problem, not me. I don't know what a
"phaseless" signal is. Does it come from a phaseless signal generator
through phaseless transmission lines??

> > I don't see anything Roy said that disagrees with what I measured, so
> > that's a non-issue.

> Roy and I have previously agreed with your measurements. It's
> your conclusions about those measurements that he apparently
> doesn't seem to understand and neither do I. I'm certainly not
> speaking for Roy, but when he points out to you that my
> measurements agree with EZNEC, one wonders what that means
> in reality.

I haven't seen Roy question anything and he hasn't told me he doesn't
understand anything.

Can you requote his post where he said that, or should I take your word
for that along with the phaseless signal??

73 Tom

2935. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:46:43 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <7P6dnXiIS9NSsofZRVn-pw@adelphia.com>
Source record: 62896

Roy Lewallen wrote:
> Of course I understand that both L and C are distributed. But the C in
> the transmission line formula isn't a longitudinal C like the C across
> an inductor; it's the (distributed, of course) shunt C between the two
> conductors of the transmission line. I don't believe you can justify
> claiming that the C across an inductor is even an approximation for the
> C from the inductor to whatever you consider to be the other
> transmission line conductor.

Agreed. They are as different as a shunt element and a series element
in a pi filter.

2936. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:48:22 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142567302.884034.234220@p10g2000cwp.googlegroups.com>
Source record: 62899

That.s O.K. Roy, you at least was able to answer the main questions I had
On the last part where I refferred to an elemement that were capacitively coupled to each other by an overlap the energy jump over point can be shown by statically charged dust.
(at least I believe so) and this point would change if frequency changed or the characteristic change with the introduction of un-equal element current characturistic.
At the moment I have a leak somewhere so the vacuum is not constant. I feel pretty sure
of what I will see initiallly, so armed with what I have gained on this thread I can head directly to an equivalent volume aproach when changing over tosing ultra thin material for
the first part of the element.(The element will be a short vertical within a vacuum that way the statically dust will chaege and the field characteristics easilly seen...I hope) I will use whit/e powder so the cross over field point will be measurable in the same way iron filings are used with a magnet.. I can easily see why you can.t follow in visualising what I am about to do as you are rather rigid in thought which is O.K.Especially if you refute the idea
of visible static charges illustrating a field of sorts. The above thoughts came about in a hospital bed where in the absence of a new British heart I had to have a lot of scraping done together with the maximum number of bypasses plus an electrical thumper to keep all things going plus a longer than normal stay in bed.with a wandering mind. I suppose I could have opted for a new american heart but I concluded that a renovated British heart would remove the necessity of another operation to add more guts to make up for the inbalance.All this came about shortly after my gall bladder burst without warning
Tee He, He
Regards
Art

2937. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:51:16 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <7P6dnXuIS9N8rYfZRVn-pw@adelphia.com>
Source record: 62897

Cecil Moore wrote:
> John Popelish wrote:
>
>> It looks like various magnitudes that you would find at 2 points along
>> a standing wave, with various fractions of the wave in the inductor as
>> frequency changes. In spite of hitting these various magnitude
>> values, there are still only two phases, 0 or 180 anywhere outside the
>> coil. In some cases, the standing wave goes through a node, inside
>> the coil and reverses phase from one end of the coil to the other.
>
>
> Exactly! Now please explain how the nS delay through a coil
> could possibly be measured using a signal that abruptly shifts
> fixed phase by 180 degrees every 180 degrees.

The only way I can see to do it is to go outside the coil and look at
how the standing current nodes move. Standing wave phase is with
respect to position, not time.

2938. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:51:57 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <7P6dnXqIS9OUrIfZRVn-pw@adelphia.com>
Source record: 62898

```
Cecil Moore wrote:
> John Popelish wrote:
>
>> Cecil Moore wrote:
>>
>>> Please explain how that could be possible with constant
>>> magnitude and phase of the currents through the coil.
>>> The magnitude and phase is absolutely constant according
>>> to the presuppositions of the lumped-circuit model. How
>>> could it possibly collapse?
>>
>>
>> Have I claimed that the lumped model strictly applies? ;-)
>
>
> No, but someone else has. ;-)

You trying to get a fight started? "Did you hear what he said about
your wife?"
```

2939. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:53:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121kcmhiqfk2r47@corp.supernews.com>
Source record: 62901

Reg Edwards wrote:
> Wanna bet?
>
> The phase shift along the coil plus the phase shift along antenna
> conductors does NOT add up 90 degrees when the antenna is 1/4-wave
> resonant. It is not anywhere near to it.

The first problem is that the phase shift along the antenna is about zero. Having the phase shift along the antenna and coil add to 90 degrees would require a 90 degree shift of current phase across the coil, regardless of the size of the coil or the antenna. Only the inductor in an EH antenna drive system has that magical property. I assume you have to empty the internal coulomb bucket periodically, but I'm sure that's proprietary.

Pluck a guitar string and watch it oscillate. Notice that all parts of the string reach their maximum and minimum excursions at the same time. There's no delay from one point to another. Same thing happens on a (standing wave) antenna or a shorted or open transmission line, and for the same reason.

Roy Lewallen, W7EL

2940. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 03:56:18 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <fNSdnf3ST7KTr4fZnZ2dnUVZ_sCdnZ2d@adelphia.com>
Source record: 62900

Roy Lewallen wrote:
> John Popelish wrote:
>
>> Roy Lewallen wrote:
>> (snip)
>>
>>> You can compensate for the loss, yes, by increasing the surface area.
>>> The way you reduce loss is to provide a large cross-sectional area
>>> for the current to flow through.
>>
>>
>> The problems I have with this approach is that the larger conductor
>> (only the outside of which is contributing to conductivity) is
>> blocking the path of more and more flux, crowding it into the space
>> that is left. It is a matter of gaining some and losing some
>> (hopefully less).
>
>
> I'm sorry, I don't understand this. Can you elaborate?

Take it to the extreme case. make the conductor diameter the average
coil diameter. Then there is little space for the total coil flux to
pass through.

> In what way does
> increasing a wire's diameter block the path of existing current and
> cause crowding?
(snip)

It doesn't block current, it blocks flux from other turns of the same
coil, reducing the inductance and lowering the Q.

I am thinking that there must be a better conductor cross section than
a big fat round cross section, a ribbon, perhaps, aligned edgewise to
the local flux, to increase the conductivity while not blocking much,
the coil flux.

2941. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:07:27 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121kdg17arvj08a@corp.supernews.com>
Source record: 62902

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>> w8ji@akorn.net wrote:
>>> I'm suprised you wouldn't want to learn more about measurements.
>> I'm surprised you wouldn't want to share your engineering
>> knowledge, e.g. is it really possible to use a phaseless
>> signal to measure phase shift? If so, please enlighten us.
>> I can't figure out how to do it. Since you apparently have
>> figured it out, please share your knowledge with us.
>
> I think you are the one with a problem, not me. I don't know what a
> "phaseless" signal is. Does it come from a phaseless signal generator
> through phaseless transmission lines??
>
>>> I don't see anything Roy said that disagrees with what I measured, so
>>> that's a non-issue.
>
>> Roy and I have previously agreed with your measurements. It's
>> your conclusions about those measurements that he apparently
>> doesn't seem to understand and neither do I. I'm certainly not
>> speaking for Roy, but when he points out to you that my
>> measurements agree with EZNEC, one wonders what that means
>> in reality.
>
> I haven't seen Roy question anything and he hasn't told me he doesn't
> understand anything.
>
> Can you requote his post where he said that, or should I take your word
> for that along with the phaseless signal??

"Phaseless signals". What an imaginative creation. If you measure zero phase angle between two points, you *have* measured the phase shift between them, and it's zero. Sounds like what Cecil is looking for is a way to measure a non-zero phase shift when the phase shift is in fact zero, to make it fit his theory. Sorry, it's zero. Period. If that doesn't fit the theory, then the theory is faulty.

I said that Cecil's phase measurements agree with EZNEC (and generally accepted theory) -- there should be almost no phase shift in the current along the wire. I also said that I couldn't say whether his amplitude measurements are correct, since Cecil didn't say (at least in the quoted posting I saw) what the positions along the wire were, just their distance from each other. But it's a trivial thing to model with EZNEC, so anyone can easily see and judge for himself. With an antenna that simple, any disagreement between EZNEC and measurements is almost

certain to be due to either measurement error or failure to make the antenna like the model, e.g., prevent common mode feedline currents.

Roy Lewallen, W7EL

2942. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:16:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121ke06ev9jep86@corp.supernews.com>
Source record: 62903

John Popelish wrote:
>
> Take it to the extreme case. make the conductor diameter the average
> coil diameter. Then there is little space for the total coil flux to
> pass through.
>
>> In what way does increasing a wire's diameter block the path of
>> existing current and cause crowding?
> (snip)
>
> It doesn't block current, it blocks flux from other turns of the same
> coil, reducing the inductance and lowering the Q.
>
> I am thinking that there must be a better conductor cross section than a
> big fat round cross section, a ribbon, perhaps, aligned edgewise to the
> local flux, to increase the conductivity while not blocking much, the
> coil flux.

Thanks for the elaboration. I didn't realize you were talking about the wire used to make a coil, but thought you (and Art) were talking about skin depth in conductors in general. The discussion gets much more complex when talking about an inductor with its linked flux.

Even when there's no flux coupled from other turns, current bunches at the edges of a flat conductor, giving it a higher resistivity than a round conductor of the same surface area. So that's a point against using a flat conductor, although other factors might -- or might not -- still tilt the balance in its favor. Proximity effect is another factor which alters current distribution and therefore resistivity and Q in an inductor, so there are a number of trades to be made.

Roy Lewallen, W7EL

2943. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:21:38 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvddgi$1m8$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62904

I don't understand what you are trying to say. Express yourself, less ambiguously, in fewer words.

Or perhaps you are nit-picking. I can't tell.

I have just explained that the resulting capacitance between adjacent conductors in a coil is very small in comparison with the capacitance of a large solid cylinder (of the same diameter as the coil) to the rest of the world.

The capacitance to the rest of the world includes electric lines of force from one half of the cylinder to the other, especially from one end to the other. The capacitance of the coil we are dealing with has very little to do with coil turns.

Reg.

"John Popelish" <jpopelish@rica.net> wrote in message news:7P6dnXiIS9NSsofZRVn-pw@adelphia.com...
> Roy Lewallen wrote:
> > Of course I understand that both L and C are distributed. But the C in
> > the transmission line formula isn't a longitudinal C like the C across
> > an inductor; it's the (distributed, of course) shunt C between the two
> > conductors of the transmission line. I don't believe you can justify
> > claiming that the C across an inductor is even an approximation for the
> > C from the inductor to whatever you consider to be the other
> > transmission line conductor.
>
> Agreed. They are as different as a shunt element and a series element
> in a pi filter.

2944. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:27:00 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <oUqSf.44152$2O6.13473@newssvr12.news.prodigy.com>
Source record: 62905

w8ji@akorn.net wrote:
> I think you are the one with a problem, not me. I don't know what a
> "phaseless" signal is. Does it come from a phaseless signal generator
> through phaseless transmission lines??

I apologize, but I actually have to plead complete ignorance on
this subject. You seem to be the expert on using phaseless signals
to measure phase. But I'm willing to learn and it is certainly
considerably more interesting than a tutorial on measurements.

> I haven't seen Roy question anything and he hasn't told me he doesn't
> understand anything.
>
> Can you requote his post where he said that, or should I take your word
> for that along with the phaseless signal??

Please stop asking me to do your research for you. I'm a very
busy person anchoring the bass section in my Methodist Choir's
Easter music and performing a very demanding solo. Have you any
idea how difficult it is for a Homo Sapien to hit low-low C?

Roy said about my measurements:

"The measurement looks good to me. The phase is exactly what EZNEC predicts
-- constant along the wire. The ratio in magnitudes we'd expect depends on
the positions along the wire, not just the spacing. Roy Lewallen, W7EL"

That's why I withdrew my "flawed" measurements and offered Roy's
"exactly" observation instead.

I'm thinking back and it seems to me that Roy reported his
measurements without drawing strange conclusions about them.

But you can lay all the objections to waste simply by explaining
how to measure phase using a source signal that doesn't change
phase. You have asserted that you have done it. Please tell us
how.
--
73, Cecil http://www.qsl.net/w5dxp

2945. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:29:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <AWqSf.44153$2O6.7145@newssvr12.news.prodigy.com>
Source record: 62907

John Popelish wrote:
> The only way I can see to do it is to go outside the coil and look at
> how the standing current nodes move. Standing wave phase is with
> respect to position, not time.

Well John, you are obviously not up on the latest techniques.
(But neither am I.)
--
73, Cecil http://www.qsl.net/w5dxp

2946. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:31:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <WYqSf.44154$2O6.31478@newssvr12.news.prodigy.com>
Source record: 62909

John Popelish wrote:
> "Did you hear what he said about your wife?"

Whatever he said is probably true. My ex-wife made
off with $3 mil of my hard-earned dollars in 1984.
I've never trusted a female since.
--
73, Cecil http://www.qsl.net/w5dxp

2947. Looking to contract someone to design antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:31:55 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <%YqSf.8491$dy4.6755@news-server.bigpond.net.au>
Source record: 62908

Hi,

I am looking for someone who would be interested in designing a Yagi antenna under contract. (Paper design is fine, I can construct and test the unit).

The frequency band required is 915 - 928 MHz

I prefer a design that is simple to make such as elements though beam, welded in place.

The design needs to be reasonably short (Beam length less than 300mm).

The material I have freely available is 6mm solid aluminium rod (and larger if needed), 12.8mm square aluminium tube (or larger if required) but have difficulty obtaining smaller than this.

Power handling is not critical as max. power is 1 Watt.

Units will be used in vertical orientation and beam width is not critical.

Required gain is at least 6dB (4 or 5 element should suffice).

Feed line is 50 Ohms coaxial cable.

SWR across band target < 1.4 : 1

Maybe folded element would be the simplest to match to with a balun even though I have to create the bends. I expect the dipole can be held in place by small plastic enclosure that isolates the radiator from the beam and enables connections to balun and feed line via cable glands ?

Please email me direct if you are interested.

Thanks

regards

David

2948. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:34:39 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <D5adneiUOLKWpofZnZ2dnUVZ_sadnZ2d@adelphia.com>
Source record: 62906

Reg Edwards wrote:
> I don't understand what you are trying to say. Express yourself, less
> ambiguously, in fewer words.
>
> Or perhaps you are nit-picking. I can't tell.

I am saying that your post made perfect sense to me. That is what
"agreed" means. :-)

2949. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:37:40 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <o2rSf.44155$2O6.37887@newssvr12.news.prodigy.com>
Source record: 62911

Roy Lewallen wrote:
> "Phaseless signals". What an imaginative creation.

Well not really, if you think about it, the phase of a DC signal can be considered to be zero everywhere. The phase of a standing wave current *is* zero everywhere on a 1/2WL thin-wire dipole. Seems to me, a standing-wave current indeed does have a lot in common with a DC current. But that might just be a coincidence. :-)
--
73, Cecil http://www.qsl.net/w5dxp

2950. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:40:05 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <neKdnXf429rMoYfZRVn-tQ@adelphia.com>
Source record: 62910

Roy Lewallen wrote:
> John Popelish wrote:
>
>>
>> Take it to the extreme case. make the conductor diameter the average
>> coil diameter. Then there is little space for the total coil flux to
>> pass through.
>>
>>> In what way does increasing a wire's diameter block the path of
>>> existing current and cause crowding?
>>
>> (snip)
>>
>> It doesn't block current, it blocks flux from other turns of the same
>> coil, reducing the inductance and lowering the Q.
>>
>> I am thinking that there must be a better conductor cross section than
>> a big fat round cross section, a ribbon, perhaps, aligned edgewise to
>> the local flux, to increase the conductivity while not blocking much,
>> the coil flux.
>
>
> Thanks for the elaboration. I didn't realize you were talking about the
> wire used to make a coil, but thought you (and Art) were talking about
> skin depth in conductors in general. The discussion gets much more
> complex when talking about an inductor with its linked flux.
>
> Even when there's no flux coupled from other turns, current bunches at
> the edges of a flat conductor, giving it a higher resistivity than a
> round conductor of the same surface area. So that's a point against
> using a flat conductor, although other factors might -- or might not --
> still tilt the balance in its favor. Proximity effect is another factor
> which alters current distribution and therefore resistivity and Q in an
> inductor, so there are a number of trades to be made.

Thank you. I guess I would need a 3D finite element analysis program
to explore skin effect in coils made of arbitrary cross section
conductor (dog bone shape, for instance).

Is proximity effect essentially the effect of the local flux (that
falls off at 1/r) that wraps around the neighboring conductor in a
coil that causes conductivity distortions in its neighbors that are in
addition to the crowding caused by the flux around the current through
the conductor segment in question? Or is it another effect, entirely?

2951. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 04:56:03 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <OtydnbadU_aS3YfZRVn-vw@adelphia.com>
Source record: 62912

Cecil Moore wrote:
> John Popelish wrote:
>
>> "Did you hear what he said about your wife?"
>
>
> Whatever he said is probably true. My ex-wife made
> off with $3 mil of my hard-earned dollars in 1984.
> I've never trusted a female since.

This factoid brings several apparently unrelated things into focus for me.

2952. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 05:31:35 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <XQrSf.44195$2O6.34156@newssvr12.news.prodigy.com>
Source record: 62913

John Popelish wrote:
> Cecil Moore wrote:
>> Whatever he said is probably true. My ex-wife made
>> off with $3 mil of my hard-earned dollars in 1984.
>> I've never trusted a female since.
>
> This factoid brings several apparently unrelated things into focus for me.

Remember the Koala Pad? I was VP of Engineering and a couple
of those patents are in my name. Koala Technologies could
not survive the president's divorce and my divorce at the
same time. The venture capitalists pulled the plug.
--
73, Cecil http://www.qsl.net/w5dxp

2953. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 07:05:22 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <3lnk12pqg7vh5h4aarsvckrr2n5rpf7oma@4ax.com>
Source record: 62914

On Fri, 17 Mar 2006 01:12:38 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>What you really want to know is how to calculate L and C from coil
>dimensions. But you won't find that from any bible.

An atheist is wholly unaware of what is to be found in a bible. Being
Buddhist myself, I got plenty.

2954. Re: Phase shift circuits

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 08:22:01 UTC
From: BKR <TAKEOUTTHISPARTrchvid7@lycos.comREMOVE>
Message-ID: <441a71b6@nntp.zianet.com>
Source record: 62915

Look up the Turnstile antenna on the web and you should see the
radiation pattern of a 90 degree phase shift. There is also a small
amount of gain over a single dipole.
Most examples are for VHS, but they can be scaled up.
KD5RPO

Harry Gross wrote:
> Thanks for all the input. I'll be playing with the idea for the next
> few weeks/months, and I'll let you all know how it works out.

2955. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 10:05:58 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121l2g8gk2ep0e4@corp.supernews.com>
Source record: 62916

John Popelish wrote:
> . . .
> Is proximity effect essentially the effect of the local flux (that falls
> off at 1/r) that wraps around the neighboring conductor in a coil that
> causes conductivity distortions in its neighbors that are in addition to
> the crowding caused by the flux around the current through the conductor
> segment in question? Or is it another effect, entirely?

I believe what you're describing is the cause of skin effect. Proximity effect is a redistribution of current around a conductor due to the flux from one turn interacting with the current in the adjacent turn. One of the simpler explanations I've seen is in Johnson & Graham, _High-Speed Signal Propagation: Advanced Black Magic_, and their quantitative and non-mathematical explanation requires seven paragraphs and two figures.

Roy Lewallen, W7EL

2956. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 11:25:13 UTC
From: w8ji@akorn.net
Message-ID: <1142594713.076548.91360@v46g2000cwv.googlegroups.com>
Source record: 62917

Roy Lewallen wrote:
> Of course I understand that both L and C are distributed. But the C in
> the transmission line formula isn't a longitudinal C like the C across
> an inductor; it's the (distributed, of course) shunt C between the two
> conductors of the transmission line. I don't believe you can justify
> claiming that the C across an inductor is even an approximation for the
> C from the inductor to whatever you consider to be the other
> transmission line conductor.
>
> Roy Lewallen, W7EL

Hi Roy,

Any answer, even if just an educated guess, is better than giving no
answer at all. No matter how far off.

73 Tom

2957. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 11:31:55 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <r0e9RwPr4pGEFA87@ifwtech.co.uk>
Source record: 62918

Roy Lewallen wrote:
>John Popelish wrote:
>> . . .
>> Is proximity effect essentially the effect of the local flux (that
>>falls off at 1/r) that wraps around the neighboring conductor in a
>>coil that causes conductivity distortions in its neighbors that are in
>>addition to the crowding caused by the flux around the current through
>>the conductor segment in question? Or is it another effect, entirely?
>
>I believe what you're describing is the cause of skin effect. Proximity
>effect is a redistribution of current around a conductor due to the
>flux from one turn interacting with the current in the adjacent turn.
>One of the simpler explanations I've seen is in Johnson & Graham,
>_High-Speed Signal Propagation: Advanced Black Magic_, and their
>quantitative and non-mathematical explanation requires seven paragraphs
>and two figures.

They are not entirely separate effects, because more localized
flux/current interactions will be causing a skin effect as well. We can
separate skin and proximity effects for convenience in thinking about
them, but they will interact to some degree.

(It's a lot like thinking about yagi antennas, where it's generally
understood that every element has interactions both within itself and
externally with every other element.)

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

2958. Re: FM TRANSCEIVERS @2.4GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 11:52:31 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1142596350.983216.159260@i39g2000cwa.googlegroups.com>
Source record: 62919

thanks.have you ever used a FM transcevier before or do yu have any
experience with toshiba, numa technologies and winceiver fm
transceivers?
thanks!

2959. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 11:59:46 UTC
From: w8ji@akorn.net
Message-ID: <1142596786.484861.188720@i39g2000cwa.googlegroups.com>
Source record: 62920

Roy Lewallen wrote:
> "Phaseless signals". What an imaginative creation. If you measure zero
> phase angle between two points, you *have* measured the phase shift
> between them, and it's zero. Sounds like what Cecil is looking for is a
> way to measure a non-zero phase shift when the phase shift is in fact
> zero, to make it fit his theory. Sorry, it's zero. Period. If that
> doesn't fit the theory, then the theory is faulty.

Yes, it sounds that way to me also.

It sounds like Cecil is trying to find a way to make his theory fit despite the fact that models and measurements show the phase shift is zero, and demanding I agree with his unusual theories like current that doesn't flow, phaseless signals, and in his latest post antennas behaving like dc circuits.

> I said that Cecil's phase measurements agree with EZNEC (and generally
> accepted theory) -- there should be almost no phase shift in the current
> along the wire. I also said that I couldn't say whether his amplitude
> measurements are correct, since Cecil didn't say (at least in the quoted
> posting I saw) what the positions along the wire were, just their
> distance from each other.

Knowing a little bit from direct experience with probes and measurements, I would't trust use of a toroidal transformer stuck on the high impedance end of a dipole loading coil and coax hanging down to a 100MHz oscilloscope. Not only does he have a pair of long transmission lines hanging down, the system is on 50MHz where any small capacitances can totally hose results.

Anyone who has tried to make a current transformer in traditional HF style with a toroid behave correctly on VHF will understand what I am saying.

All that aside, it appears the main argument is Cecil's theory requires measuring current that doesn't flow and a signal magically generated with phase that cannot change. The worse part of that is he is demanding I answer something I cannot answer (phaseless signal, and current that doesn't flow), so I guess I''ll just have to settle for my share of the 3 million dollar theory and leave.

73 Tom

2960. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 13:29:20 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QQySf.61102$dW3.41475@newssvr21.news.prodigy.com>
Source record: 62921

w8ji@akorn.net wrote:
> It sounds like Cecil is trying to find a way to make his theory fit
> despite the fact that models and measurements show the phase shift is
> zero, and demanding I agree with his unusual theories like current
> that doesn't flow, phaseless signals, and in his latest post antennas
> behaving like dc circuits.

Again, it is not my theory. It is the distributed network model
known to succeed when the lumped-circuit model fails in the presence
of standing waves. There is no useful phase information left in
a standing wave current. DC current and standing wave current are
equally 100% ineffective at measuring the delay through a coil.

I have asked this technical question multiply times: How does one
use a signal with unchanging phase to measure the delay through a
coil? The answer is that one cannot.

> All that aside, it appears the main argument is Cecil's theory requires
> measuring current that doesn't flow ...

No, using a signal with unchanging phase to try to measure delay
is your main argument, not mine. I know it is foolish to measure
a current with unchanging phase. Any phase measurement is
meaningless.

cos(kz)*cos(wt) doesn't possess phase information. One can
tell that from the formula. Unlike you, Gene Fuller understands
the meaning of those standing wave equation terms.

> Gene Fuller wrote:
>> In a standing wave antenna problem, such as the one you describe,
>> there is no remaining phase information. Any specific phase
>> characteristics of the traveling waves died out when the startup
>> transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be
>> seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really
>> an amplitude description, not a phase.

Do you disagree with what Gene had to say?

"PHASE IS GONE. KAPUT. VANISHED. CANNOT BE RECOVERED. NEVER TO BE
SEEN AGAIN." In other words, one cannot use standing wave current
to measure the delay through a coil. Delay doesn't exist in a standing
wave current, i.e. "PHASE IS GONE."

> The worse part of that is he is
> demanding I answer something I cannot answer ...

There's nothing wrong with admitting ignorance. Just please cease trying to disguise your ignorance as some technical fact. When are you going to correct the technical errors on your web page?

75m mobile bugcatcher loading coils possess a velocity factor of approximately 0.0175. They are about 6.6 inches long. The delay through that coil is ~0.128 wavelength at 4 MHz. That's a delay of 32 degrees. That's how much electrical length the coil is occupying when it is used on 4 MHz.
--
73, Cecil http://www.qsl.net/w5dxp

2961. Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 14:02:06 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <yjzSf.61103$dW3.19208@newssvr21.news.prodigy.com>
Source record: 62922

Here are some valid conclusions that can drawn from the
"Current through coils" thread.

A mobile antenna is a standing wave antennas. Some mobile
antennas use loading coils within that standing wave
environment.

There is no useful phase information in standing wave
current. Therefore, standing wave current cannot be used
to determine the percentage of a wavelength that is
occupied by the coil.

Standing wave current cannot even be used to determine
what percentage of a wavelength is occupied by the whip
above the coil. Standing wave current has virtually
unchanging phase the entire length of the mobile antenna.

The percentage of a wavelength occupied by any element
can be estimated using that element's velocity factor.
The velocity factor of the whip is known. The velocity
factor of the coil can be measured or estimated using
applicable formulas.

The presuppositions of the lumped-circuit model render
it ineffective in any attempt to analyze large coils
in a standing wave environment. Either the distributed
network model or Maxwell's equations must be used to
obtain valid analysis results.
--
73, Cecil http://www.qsl.net/w5dxp

2962. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 14:54:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <_4ASf.54676$H71.48530@newssvr13.news.prodigy.com>
Source record: 62923

<w8ji@akorn.net> wrote:
> Any answer, even if just an educated guess, is better than giving no
> answer at all. No matter how far off.

An answer that is completely wrong is better than no answer at all?

Speaking of answers, here is a question to which you have, so far,
avoided giving an answer.

In the graphic at: http://www.qsl.net/w5dxp/3freq.gif , the currents
in the center graphic reported by EZNEC are:

The current at the bottom of the coil is 0.17 amps with a phase angle
of -1.72 degrees.

The current at the top of the coil is 2.0 amps with a phase angle of
-179.6 degrees.

The current at the top of the coil is about 12 times the magnitude of
the current at the bottom of the coil.

The phase shift through the coil is about 178 degrees.

Once again, please explain those results. Thanks in advance.
--
73, Cecil, W5DXP

2963. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 15:19:16 UTC
From: richardharrison@webtv.net
Message-ID: <18781-441AD374-1466@storefull-3252.bay.webtv.net>
Source record: 62924

Reg wrote:
"Wanna bet?"

Don`t bet against Reg.

Phase shift aling the coil plus the phase shift along the conductors DOES add up to 90 degrees when the antenna is 1/4-wave resonant.

Recall the purpose of the coil is electrically to make the too-short whip appear full-sized.

The assembly is resonant when worked against the earth. Its plus and minus 90-degree reactances are equal in magnitude to each other.

Best regards, Richard Harrison, KB5WZI

2964. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 15:47:12 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <4SASf.2253$bn3.2076@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62925

Cecil,

I never in my wildest dreams said anything about Tom's measurements.
(Perhaps in your dreams.)

I don't believe that Tom set up a simple standing wave antenna and then
tried to measure the phase of the standing wave.

You seem to have forgotten, but a few days ago you were vehemently
arguing that the bugcatcher coil in your mobile antenna must have X
amount of phase shift. My comments, which may have proven too
successful, dealt only with the basic fundamental properties of waves.
That's the sort of thing that everyone should have learned in elementary
school, but such knowledge seems to be fleeting for some people.

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> It sounds like Cecil is trying to find a way to make his theory fit
>> despite the fact that models and measurements show the phase shift is
>> zero, and demanding I agree with his unusual theories like current
>> that doesn't flow, phaseless signals, and in his latest post antennas
>> behaving like dc circuits.
>
>
> Again, it is not my theory. It is the distributed network model
> known to succeed when the lumped-circuit model fails in the presence
> of standing waves. There is no useful phase information left in
> a standing wave current. DC current and standing wave current are
> equally 100% ineffective at measuring the delay through a coil.
>
> I have asked this technical question multiply times: How does one
> use a signal with unchanging phase to measure the delay through a
> coil? The answer is that one cannot.
>
>> All that aside, it appears the main argument is Cecil's theory requires
>> measuring current that doesn't flow ...
>
>
> No, using a signal with unchanging phase to try to measure delay
> is your main argument, not mine. I know it is foolish to measure
> a current with unchanging phase. Any phase measurement is

> meaningless.
>
> cos(kz)*cos(wt) doesn't possess phase information. One can
> tell that from the formula. Unlike you, Gene Fuller understands
> the meaning of those standing wave equation terms.
>
> > Gene Fuller wrote:
>
>>> In a standing wave antenna problem, such as the one you describe,
>
> >> there is no remaining phase information. Any specific phase
> >> characteristics of the traveling waves died out when the startup
> >> transients died out.
>
>>>
>>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be
>
> >> seen again.
>
>>>
>>> The only "phase" remaining is the cos (kz) term, which is really
>
> >> an amplitude description, not a phase.
>
> Do you disagree with what Gene had to say?
>
> "PHASE IS GONE. KAPUT. VANISHED. CANNOT BE RECOVERED. NEVER TO BE
> SEEN AGAIN." In other words, one cannot use standing wave current
> to measure the delay through a coil. Delay doesn't exist in a standing
> wave current, i.e. "PHASE IS GONE."
>
>> The worse part of that is he is
>> demanding I answer something I cannot answer ...
>
>
> There's nothing wrong with admitting ignorance. Just please cease
> trying to disguise your ignorance as some technical fact. When
> are you going to correct the technical errors on your web page?
>
> 75m mobile bugcatcher loading coils possess a velocity factor
> of approximately 0.0175. They are about 6.6 inches long. The
> delay through that coil is ~0.128 wavelength at 4 MHz. That's
> a delay of 32 degrees. That's how much electrical length the
> coil is occupying when it is used on 4 MHz.

2965. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:03:32 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <o5BSf.575852$qk4.386639@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62826

Cecil,

1. I have looked at that figure, and I suspect many others have as well. There is no information given about dimensions or any other modeling conditions, so it is difficult to say anything more than, "Yep, there's a bunch of lines and numbers on that figure."

2. As I pointed out recently, a phase shift of 178 degrees is really a phase shift of 2 degrees. It is a common, but unfortunate, convention that the ordinary sign reversal of a sinusoidal function is deemed a "phase shift" or "phase reversal". The only "phase" worth discussing is the one that occurs inside the argument for the sinusoidal function. That phase does not typically undergo sudden jumps or reversals.

73,
Gene
W4SZ

Cecil Moore wrote:

>
> Speaking of answers, here is a question to which you have, so far,
> avoided giving an answer.
>
> In the graphic at: http://www.qsl.net/w5dxp/3freq.gif , the currents
> in the center graphic reported by EZNEC are:
>
> The current at the bottom of the coil is 0.17 amps with a phase angle
> of -1.72 degrees.
>
> The current at the top of the coil is 2.0 amps with a phase angle of
> -179.6 degrees.
>
> The current at the top of the coil is about 12 times the magnitude of
> the current at the bottom of the coil.
>
> The phase shift through the coil is about 178 degrees.
>
> Once again, please explain those results. Thanks in advance.
> --
> 73, Cecil, W5DXP
>
>

2966. Re: Vertical vs Horizontal shootout part one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:20:33 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <acol12dbnsoft1rcnqpeicju7hp9fq4a2q@4ax.com>
Source record: 62828

On Mon, 06 Mar 2006 18:43:22 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>Gary Schafer wrote:
>> . . .
>> The calibration points that Mike did on his receiver should be valid
>> for any band for his antenna comparisons. An actual signal strength
>> measurement is not required nor would it be valid between bands. All
>> that is really needed is the difference measurements between the two
>> antennas so his calibration between points on the meter scale will be
>> valid on any band.
>
>I'm not sure I fully understand this. The difference from one S meter
>division to another *is* likely to be different on different bands,
>since it depends on the gain-vs-voltage characteristics of the
>controlled stages which can vary with frequency. But I do agree that he
>can make good comparative antenna measurements without good S meter
>calibration, because he has a step attenuator. By simply setting the
>attenuator so he gets the same S-meter reading on both antennas, S-meter
>calibration is completely irrelevant -- the antenna gain difference is
>the attenuator setting.
>
>I find it useful, however, to be able to see the difference with
>reasonable accuracy just by looking at my S meter. But that does require
>calibration for the band in use.
>
> >. . .
>
>Roy Lewallen, W7EL

Hi Roy,

I have been away for awhile so haven't had a chance to reply.

My point of the S meter being the same relative difference between S
units on all bands comes from the assumption that like most modern
radios, there is no AGC controlling anything in the front end of the
radio. All the gain control is done in the IF so it is impartial to
frequency.

So even if there is some difference in the gain of the first mixer, or
preamp if there is one, the gain controlled IF sees the same relative
signal level regardless of band.

I did a quick check on my old Kenwood TS430 using a Wavetek 3001
signal generator that has a step attenuator in it and got the

following results:

+60= -10dbm
+50= -20dbm
+40= -30dbm
+30= -40dbm
+20= -50dbm
+10= -60dbm
S9= -70dbm
S7= -80dbm
S4= -90dbm
S1.5= -100dbm

Test was done on 80, 20 and 10 meters with the readings the same on all bands as close as I could determine the meter reading. I would suspect that the signal generator leveling accuracy may be no better than what error can be read on the S meter.

73
Gary K4FMX

2967. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:23:29 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <h6SdnYwAhfKwfIfZnZ2dnUVZ_sKdnZ2d@adelphia.com>
Source record: 62827

Cecil Moore wrote:
> Here are some valid conclusions that can drawn from the
> "Current through coils" thread.
>
> A mobile antenna is a standing wave antennas. Some mobile
> antennas use loading coils within that standing wave
> environment.
>
> There is no useful phase information in standing wave
> current. Therefore, standing wave current cannot be used
> to determine the percentage of a wavelength that is
> occupied by the coil.

I think I disagree with this. A standing wave has one of two phases with respect to time, but the two waves traveling through both the antenna elements and any loading coils do have phase shifts, both with respect to time and with respect to position. But when the two waves are superposed, all that is left of this phase information is phase with respect to position. The phase shift of both the single direction waves can be inferred by the shift in position of where they combine to form a node (if you make the (reasonable?) assumption that the delay in both directions is equal.

> Standing wave current cannot even be used to determine
> what percentage of a wavelength is occupied by the whip
> above the coil.

There is information about this in the amplitude versus position of the standing wave. But the only very definite points in this variation are the nodes, so is the length is less than a half wavelength, you have only the node at the end to work with, so you have to use the sinusoidal amplitude curve to work with.

> Standing wave current has virtually
> unchanging phase the entire length of the mobile antenna.

With respect to time, yes. With respect to position, no. The amplitude is different at different locations, so you can use phase of the wave with respect to position. It is just a bit of a mental switch to change from phase in time to phase (fraction of a 180 degree half cycle of amplitude wave from one node to the next).

> The percentage of a wavelength occupied by any element
> can be estimated using that element's velocity factor.

Or the velocity factor of the traveling waves can be measured by the interference pattern they produce as a standing wave. One cycle of the standing amplitude wave has to occupy the length that carries one cycle of the traveling wave.

> The velocity factor of the whip is known.

Lets say that it has been measured for some cases, and generalized to others.

> The velocity
> factor of the coil can be measured or estimated using
> applicable formulas.

If they apply to this particular coil construction. Or you could measure the standing wavelength with an without the coil and, so, measure the coil's "length" in standing wave (and thus, traveling wave) lengths.

> The presuppositions of the lumped-circuit model render
> it ineffective in any attempt to analyze large coils
> in a standing wave environment.

Or any other environment where they have a net delay (electrical length) that is not insignificant with respect to the frequency in question.

> Either the distributed
> network model or Maxwell's equations must be used to
> obtain valid analysis results.

Or you work with amplitude measurements versus position of the standing wave.

2968. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:27:43 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <jqGdnXg5_uGxf4fZnZ2dnUVZ_sKdnZ2d@adelphia.com>
Source record: 62829

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> Is proximity effect essentially the effect of the local flux (that
>> falls off at 1/r) that wraps around the neighboring conductor in a
>> coil that causes conductivity distortions in its neighbors that are in
>> addition to the crowding caused by the flux around the current through
>> the conductor segment in question? Or is it another effect, entirely?
>
>
> I believe what you're describing is the cause of skin effect. Proximity
> effect is a redistribution of current around a conductor due to the flux
> from one turn interacting with the current in the adjacent turn. One of
> the simpler explanations I've seen is in Johnson & Graham, _High-Speed
> Signal Propagation: Advanced Black Magic_, and their quantitative and
> non-mathematical explanation requires seven paragraphs and two figures.

Thanks for the reference. I am always interested in a good
explanation. I may have to look for this in a library, though. The
cheapest copy I find costs $55.

2969. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:32:48 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <m42dnVBK6dXBfofZRVn-sg@adelphia.com>
Source record: 62830

Ian White GM3SEK wrote:
> Roy Lewallen wrote:

>> I believe what you're describing is the cause of skin effect.
>> Proximity effect is a redistribution of current around a conductor due
>> to the flux from one turn interacting with the current in the adjacent
>> turn. One of the simpler explanations I've seen is in Johnson &
>> Graham, _High-Speed Signal Propagation: Advanced Black Magic_, and
>> their quantitative and non-mathematical explanation requires seven
>> paragraphs and two figures.
>
>
> They are not entirely separate effects, because more localized
> flux/current interactions will be causing a skin effect as well. We can
> separate skin and proximity effects for convenience in thinking about
> them, but they will interact to some degree.
(snip)

I picture proximity effect this way:

The flux around a round conductor is perfectly circular and must build
up and collapse through the surface of the conductor each half cycle.
But if there is a another conductor very near, the combination of
the two fields adds up to an off center, non circular result around
the first conductor, but this must still build up, collapse each half
cycle. It just doesn't do this symmetrically with respect to the
conductor. So the skin effect in the conductor is also no longer
symmetrical around the conductor. Current is not only crowded toward
the surface, but to some parts of the surface more than others.

2970. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:40:05 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <FDBSf.48020$F_3.5451@newssvr29.news.prodigy.net>
Source record: 62831

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:
> I never in my wildest dreams said anything about Tom's measurements.

Of course not and I certainly didn't mean to imply otherwise. What
you said was *objective and impersonal*, applicapable to anyone's
measurements and also applies directly to Tom's earlier measurements.

> I don't believe that Tom set up a simple standing wave antenna and then
> tried to measure the phase of the standing wave.

Maybe we should ask him. As I understand it, both Tom and Roy
set up a simple loaded 1/4WL resonant *standing wave* monopole
and measured the standing wave current at the bottom and top
of the coil. EZNEC could have told them that they wouldn't
measure any phase shift around the coil or anywhere else
around along the antenna..

It's an easy mistake to make to look at the current displayed
by EZNEC and picture that current flowing from the feedpoint
to the tip while being 100% radiated in the process so the
current falls to zero at the tip of the antenna. As we know,
those are not the technical facts. The reflected wave is a large
percentage of the forward wave.

As seen from the graphic at: http://www.qsl.net/w5dxp/3freq.gif

that standing wave current can have virtually any magnitude but
has a phase that comes only in near-zero or near-180 degrees
increments.

I've been asking how to obtain phase information from a
standing wave current. Nobody has answered.
--
73, Cecil, W5DXP

2971. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 16:48:27 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <vLBSf.48023$F_3.11588@newssvr29.news.prodigy.net>
Source record: 62832

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:
> 1. I have looked at that figure, and I suspect many others have as well.
> There is no information given about dimensions or any other modeling
> conditions, so it is difficult to say anything more than, "Yep, there's
> a bunch of lines and numbers on that figure."

The EZNEC file is available for the asking. Do you want a copy?
I will add the antenna specs to the bottom of the graphic.
--
73, Cecil, W5DXP

2972. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 17:03:33 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <FZBSf.48025$F_3.37277@newssvr29.news.prodigy.net>
Source record: 62833

"John Popelish" <jpopelish@rica.net> wrote:
> Cecil Moore wrote:
> > There is no useful phase information in standing wave
> > current. Therefore, standing wave current cannot be used
> > to determine the percentage of a wavelength that is
> > occupied by the coil.
>
> I think I disagree with this. A standing wave has one of two phases
> with respect to time, but the two waves traveling through both the
> antenna elements and any loading coils do have phase shifts, both with
> respect to time and with respect to position. But when the two waves
> are superposed, all that is left of this phase information is phase
> with respect to position. The phase shift of both the single
> direction waves can be inferred by the shift in position of where they
> combine to form a node (if you make the (reasonable?) assumption that
> the delay in both directions is equal.

I don't disagree with you so I need to rephrase my apparently
poorly worded statement above to make it more understandable.

> There is information about this in the amplitude versus position of
> the standing wave. But the only very definite points in this
> variation are the nodes, so is the length is less than a half
> wavelength, you have only the node at the end to work with, so you
> have to use the sinusoidal amplitude curve to work with.

> Or the velocity factor of the traveling waves can be measured by the
> interference pattern they produce as a standing wave. One cycle of
> the standing amplitude wave has to occupy the length that carries one
> cycle of the traveling wave.

I agree, one can use knowledge and indirect methods. That's
exactly what I do and have been recommending. You and I seem
to be in agreement.
--
73, Cecil, W5DXP

2973. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 17:06:09 UTC
From: Scotty <Plaid+man@scotchtapes.com>
Message-ID: <441AEC80.263F33@scotchtapes.com>
Source record: 62834

Scotchï¿½ Self-Fusing Silicone Rubber Electrical Tape 70
1 in x 30 ft

This is a high-temperature, arc-and track-resistant tape composed of
self-fusing, inorganic silicone rubber with an easy-tear and easy-strip liner.
Packed 1 per box, 10 per carton with 50 per case.

2974. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 17:18:28 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <R-Cdnf4mncmLc4fZnZ2dnUVZ_tSdnZ2d@adelphia.com>
Source record: 62835

Cecil Moore wrote:
> "John Popelish" <jpopelish@rica.net> wrote:
(snip)
>>Or the velocity factor of the traveling waves can be measured by the
>>interference pattern they produce as a standing wave. One cycle of
>>the standing amplitude wave has to occupy the length that carries one
>>cycle of the traveling wave.
>
>
> I agree, one can use knowledge and indirect methods. That's
> exactly what I do and have been recommending. You and I seem
> to be in agreement.

I am not sure we have the exact same thoughts, but I think there are areas of agreement.

The real revelation for me, from this discussion is how the concept of "phase" takes a dimensional jump (from time to position) when you change from taking about a traveling wave to the standing wave that results from the superposition of a pair of oppositely traveling waves of the same frequency.

2975. Re: compact antenna for short range direction finding

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 17:27:17 UTC
From: Snide <nospam@home.com>
Message-ID: <441af17c$0$1146$7a628cd7@news.club-internet.fr>
Source record: 62836

the problem is that the finder will be mounted in a vehicle, and can't be rotated, unless with a motor. I would avoid such a mecanic system, and I'm rather interested in an circular antenna or array of antennas.

Denis

2976. Re: ANTENNA SHARING

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 17:40:09 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dves9pqva2@engnntp2.cig.mot.com>
Source record: 62839

I don't think its quite that simple (circulator) and I'm not sure how the
circulator solves the problem particularly if it has only two ports. In
addition a circulator for 30-512 probably isn't in existence. Perhaps more
explanation is needed on this, Dan.

This depends on the actual frequencies.
A diplexer must have two non-overlapping frequency ranges to "split" in two.
Like one is 30 - 90 and the other is 100-512. Each can be quite wide.
What your post has is OVERLAPPING frequencies and that is a problem. If one
was 30-90 and the other 120-512 that would be easier. There are units that
are quite inexpensive that will do 2-150 and 200-512.

You seem to have the correct idea about the impedance "seen" at one, but at
the frequency of the other, but this applies when using some methods, not
all.

If the two radios will be operated at the same time, then the problem is
more strict in the requirements of the method used. When one transmitter is
transmitting, it puts considerable power into the system at the transmit
frequency, and harmonics as you well know, however, a transmitter also puts
out considerable NOISE all over the place. There is typically more noise
nearer to the transmit frequency. This noise must be reduced to prevent it
from desensing the other receiver and this may require additional filtering.

I know this makes things more difficult, but from your post, it looks that
way.

73, Steve, K,9.D;C'I

"Dan Andersson" <dan@andersson.co.uk> wrote in message
news:SSKdnUw3lvL2fYjZSa8jmw@karoo.co.uk...
> Big Nose wrote:
>
> > Currently I am looking into the problem of using a common antenna for
> > two VHF transceivers. One operates 30 - 90 MHz and the other from 30 -
> > 512 MHz. They would both be tuned into seperate frequencies and need
> > to share a common broadband, omni directional, vertical monopole.
> >
> > I think I am getting myself a bit confused (or should I say more
> > confused), do I need to used a diplexer? Would a T piece not suffice
> > as both sets would be tuned to different frequencies and seperation and
> > harmonics would be considered? Would these factors not mean that the
> > input impedance to the set tuned into the different frequency would
> > remain high thus not effect matching?
>
>

> Simple...
>
> Get a two port circulator. That'll solve your problem (but at a price.
Try
> E-Bay). At your low frequencies, try build one yourself.
>
> Regarding the impedance, that is not that problematic. You can basically
> transform any impedance to your taste. You will incur signal loss tho'.
>
> Also, as you unfortunately are looking at the lower end of the RF spectra,
> all these parts will be bulky but it's still possible.
>
>
> Cheers
>
>
> Dan / M0DFI

2977. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 18:01:14 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <KPCSf.2356$tN3.1254@newssvr27.news.prodigy.net>
Source record: 62837

"John Popelish" <jpopelish@rica.net> wrote:
> The real revelation for me, from this discussion is how the concept of
> "phase" takes a dimensional jump (from time to position) when you
> change from taking about a traveling wave to the standing wave that
> results from the superposition of a pair of oppositely traveling waves
> of the same frequency.

Yet some people continue to argue that standing wave current is
the same in form and function as traveling wave current. There
certainly is quite a difference between cos(kz)*cos(wt) and
cos(kz+wt)
--
73, Cecil, W5DXP

2978. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 18:20:23 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <l4ednQ66fLAEYYfZRVn-rQ@adelphia.com>
Source record: 62838

Cecil Moore wrote:
> "John Popelish" <jpopelish@rica.net> wrote:
>
>>The real revelation for me, from this discussion is how the concept of
>>"phase" takes a dimensional jump (from time to position) when you
>>change from taking about a traveling wave to the standing wave that
>>results from the superposition of a pair of oppositely traveling waves
>>of the same frequency.
>
>
> Yet some people continue to argue that standing wave current is
> the same in form and function as traveling wave current. There
> certainly is quite a difference between cos(kz)*cos(wt) and
> cos(kz+wt)

When the two waves combine, information is lost, just as when two DC currents pass through the same wire. You can measure the total current, but information as to what each of the original two currents were, is lost. All you can say is that the two waves add to zero at some points, and add to an alternating current (at the original frequency) at some magnitude at other points. These measurements tell you a lot about the two waves (their physical wavelength on the conductor, for instance), but it doesn't tell you enough to reconstruct both of them, completely, without some assumptions.

2979. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 18:50:50 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <eyDSf.48057$F_3.22529@newssvr29.news.prodigy.net>
Source record: 62840

Cecil Moore wrote:
> There is no useful phase information in standing wave
> current. Therefore, standing wave current cannot be used
> to determine the percentage of a wavelength that is
> occupied by the coil.

Please replace the above with:

There is no useful phase information contained in the
standing wave current phase measurement. Therefore,
the standing wave current phase measurement alone
cannot be used to determine the percentage of a
wavelength that is occupied by the coil. The
standing wave current amplitude measurement does
contain some implied information about the underlying
forward and reflected waves, e.g. they are equal and
out of phase at a point where the standing wave amplitude
is zero.

How's that, John?
--
73, Cecil http://www.qsl.net/w5dxp

2980. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:22:23 UTC
From: w8ji@akorn.net
Message-ID: <1142623343.222039.185800@e56g2000cwe.googlegroups.com>
Source record: 62841

This reminds me of the famous Fractenna Threads of years ago, where Fractenna argued and argued, couldn't convine most people of anything, and then declared himself correct.

2981. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:25:41 UTC
From: w8ji@akorn.net
Message-ID: <1142623541.576408.96120@j52g2000cwj.googlegroups.com>
Source record: 62842

Gene Fuller wrote:
> Cecil,
>
> I never in my wildest dreams said anything about Tom's measurements.
> (Perhaps in your dreams.)
>
> I don't believe that Tom set up a simple standing wave antenna and then
> tried to measure the phase of the standing wave.
>
> You seem to have forgotten, but a few days ago you were vehemently
> arguing that the bugcatcher coil in your mobile antenna must have X
> amount of phase shift. My comments, which may have proven too
> successful, dealt only with the basic fundamental properties of waves.
> That's the sort of thing that everyone should have learned in elementary
> school, but such knowledge seems to be fleeting for some people.

Roy measured a real antenna for phase, I measured a moblile antenna for
current.

http://www.w8ji.com/agreeing_measurements.htm

2982. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:26:19 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <683m12t06d8nhfr3hkru8sikjau2jck4ho@4ax.com>
Source record: 62843

On Fri, 17 Mar 2006 18:50:50 GMT, Cecil Moore <mycall@arrl.net> wrote:
>How's that, John?
Sounds like you've finally come around to impeaching your references.

2983. APRSPoint new version released and sale

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:33:16 UTC
From: "hxc98@yahoo.com" <hxc98@yahoo.com>
Message-ID: <1142623996.604188.127690@j52g2000cwj.googlegroups.com>
Source record: 62844

A new version of APRSPoint is released, new features include,

1. Implemented APRS server filter setting,
2. Enabled auto connect for TCP connection,
3. Customization of track line width and style,

and numerous other fixes and enhancements. Please visit
http://www.aprspoint.com for details of this new release and sale.
Thanks.

2984. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:58:09 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <lxESf.1663$4L1.1097@newssvr11.news.prodigy.com>
Source record: 62845

w8ji@akorn.net wrote:
> This reminds me of the famous Fractenna Threads of years ago, where
> Fractenna argued and argued, couldn't convine most people of anything,
> and then declared himself correct.

What is really strange is that you believe what it "reminds you
of" is of technical importance. How about a technical rebuttal?
Guilt by association is an easily recognized diversion of the
issue. For the record, I argued with Chip as much as you did.
In fact, Tom, I always take your side when you are right.

Gene appears to me to be incredulous that you could possibly
believe there is any information at all in the standing wave
current phase measurement. Hint: There is none, just as Gene
asserts.

I suspect that Roy, W7EL, has discovered that same thing and
realizes that his standing wave current measurements, though
perfectly accurate, didn't provide any information that wasn't
already available from EZNEC or Kraus.

What I suspect is that neither you nor Roy realized that the
standing wave current phase is virtually constant from the
feedpoint to the tip of the antenna in a mobile antenna,
whether a coil is present or not. (When I reported the same
results as EZNEC, you implied my measurements were wrong.)
Roy said my measurements agreed with EZNEC. Is EZNEC wrong?

So when is one going to correct the errors on one's web page?
(Please note the use of the objective, third-person, impersonal
pronoun, "one".)
--
73, Cecil http://www.qsl.net/w5dxp

2985. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 19:59:42 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <OyESf.1664$4L1.1179@newssvr11.news.prodigy.com>
Source record: 62846

w8ji@akorn.net wrote:
> Roy measured a real antenna for phase, I measured a moblile antenna for
> current.

Not sure what this means. Are you distancing yourself from
Roy's phase measurements?
--
73, Cecil http://www.qsl.net/w5dxp

2986. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 20:30:37 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121m73f340pt49c@corp.supernews.com>
Source record: 62848

John Popelish wrote:
> . . .
> The real revelation for me, from this discussion is how the concept of
> "phase" takes a dimensional jump (from time to position) when you change
> from taking about a traveling wave to the standing wave that results
> from the superposition of a pair of oppositely traveling waves of the
> same frequency.

Of course, we can speak of the phase (temporal or spacial) of any periodic waveform. But it might be important to keep in mind that the spacial amplitude distribution of a standing wave isn't generally sinusoidal. When the forward and reverse traveling waves are equal in magnitude, the amplitude distribution -- that is, the "waveform" if you plot magnitude versus position -- is the absolute value of a sine function. For all other cases, it's described by hyperbolic trig functions. So the "jump" from time to position involves more than phase; it also involves a change in waveshape.

Roy Lewallen, W7EL

2987. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 20:30:53 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <10FSf.577003$qk4.144048@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62847

Cecil,

It is often entertaining to see someone switch positions and then claim
that's what he meant all along. (Yes, I am talking about you.) However,
I assure you that I am not "incredulous" about anything to do with this
topic.

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> This reminds me of the famous Fractenna Threads of years ago, where
>> Fractenna argued and argued, couldn't convine most people of anything,
>> and then declared himself correct.
>
>
> What is really strange is that you believe what it "reminds you
> of" is of technical importance. How about a technical rebuttal?
> Guilt by association is an easily recognized diversion of the
> issue. For the record, I argued with Chip as much as you did.
> In fact, Tom, I always take your side when you are right.
>
> Gene appears to me to be incredulous that you could possibly
> believe there is any information at all in the standing wave
> current phase measurement. Hint: There is none, just as Gene
> asserts.
>
> I suspect that Roy, W7EL, has discovered that same thing and
> realizes that his standing wave current measurements, though
> perfectly accurate, didn't provide any information that wasn't
> already available from EZNEC or Kraus.
>
> What I suspect is that neither you nor Roy realized that the
> standing wave current phase is virtually constant from the
> feedpoint to the tip of the antenna in a mobile antenna,
> *whether a coil is present or not*. (When I reported the same
> results as EZNEC, you implied my measurements were wrong.)
> Roy said my measurements agreed with EZNEC. Is EZNEC wrong?
>
> So when is one going to correct the errors on one's web page?
> (Please note the use of the objective, third-person, impersonal
> pronoun, "one".)

2988. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 20:41:51 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142628111.546078.50840@i39g2000cwa.googlegroups.com>
Source record: 62849

You disappoint me Tom.
After reading what you wrote about a week ago about how bad it was some
years back
you have now reverted back to the old days. There is no need to smear
Cecil like you did with Chip. It will only poison the forum and force
you to leave again. Be nice
and don't get personal with those who do not fall in line with you
Art

2989. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 20:53:12 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <YkFSf.1672$4L1.387@newssvr11.news.prodigy.com>
Source record: 62850

Roy Lewallen wrote:
> When the forward and reverse traveling waves are equal in
> magnitude, the amplitude distribution -- that is, the "waveform" if you
> plot magnitude versus position -- is the absolute value of a sine
> function. For all other cases, it's described by hyperbolic trig
> functions. So the "jump" from time to position involves more than phase;
> it also involves a change in waveshape.

Exactly! That's why the current waveforms through the coils
are not perfect cosine waves. To maintain the same forward
and reflected power, when the phase between the voltage
and current changes, their amplitudes must change accordingly.

Conservation of energy dictates that V*I*cos(A) must remain
constant (assuming no storage) so if the (A) angle changes,
voltage and current magnitudes must change accordingly.
--
73, Cecil http://www.qsl.net/w5dxp

2990. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 21:05:41 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <FwFSf.1675$4L1.552@newssvr11.news.prodigy.com>
Source record: 62851

Gene Fuller wrote:
> It is often entertaining to see someone switch positions and then claim
> that's what he meant all along.

My basic position has been consistant for years and so
has Tom's. If you google the newsgroup from a couple
of years ago, I asserted to Roy that his standing wave
phase measurements were meaningless. I asserted that he
had measured the wrong parameter. Where were you?

Years ago, I indeed thought it was a simple problem.
I no longer think it is a simple problem. If that's
defined as "switching positions", then I am guilty.
--
73, Cecil http://www.qsl.net/w5dxp

2991. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 21:13:07 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142629987.383332.301360@e56g2000cwe.googlegroups.com>
Source record: 62852

You know that is exactly how I see it which is contrary to what Roy is
saying. I cannot find any corroberation of his statement that for thin
material relative to skin depth current density is constant. Perhaps he
has read something that forces the current flow to follow D,C.
properties. As the current surface moves away
from the interactive field/s the conditions on the surface certainly
must differ.
Hopefully, Tom with his superior knoweledge on this subject will
intercede and share his knoweledge.
Regards
Art

2992. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 21:43:47 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <12bm12pnnuuqv8lpe0qogu6cc81oouei5i@4ax.com>
Source record: 62853

On 17 Mar 2006 13:13:07 -0800, "art" <aunwin@insightbb.com> wrote:
>I cannot find any corroberation of his statement that for thin
>material relative to skin depth current density is constant.

It's simple math.

For instance, you go to the store to buy penny candy. You plunk down the penny. The grocer says there's 5% tax on sales. 5% of 1 penny ultimately reduces his options. He takes the penny and gives it to the government. You get nothing. The grocer sells nothing. The government gives the penny to a billionare as a tax refund. Deprived of your penny candy, you get to drive through pot holes as the billionare helicopters over you. To show his charitable feelings, he scatters messages of cheer and thanks to those below. You are pulled over for littering, fined $1000 and put on a trash pick-up team.

2993. Re: Coil Current Summary

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 22:09:25 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <MtKdnbMEWK7dr4bZRVn-qQ@adelphia.com>
Source record: 62854

Cecil Moore wrote:
> Cecil Moore wrote:
>
>> There is no useful phase information in standing wave
>> current. Therefore, standing wave current cannot be used
>> to determine the percentage of a wavelength that is
>> occupied by the coil.
>
>
> Please replace the above with:
>
> There is no useful phase information contained in the
> standing wave current phase measurement. Therefore,
> the standing wave current phase measurement alone
> cannot be used to determine the percentage of a
> wavelength that is occupied by the coil. The
> standing wave current amplitude measurement does
> contain some implied information about the underlying
> forward and reflected waves, e.g. they are equal and
> out of phase at a point where the standing wave amplitude
> is zero.
>
> How's that, John?

Much better.

2994. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 22:11:40 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121md0ur9gdg973@corp.supernews.com>
Source record: 62855

When the material is thin relative to a skin depth, the current isn't completely uniform at any frequency above DC. However, it's close enough that the resistivity is essentially the same as if it were uniformly distributed. That's why I said you could treat the problem as though it were.

I'm surprised that you couldn't find this on the web, but I'll provide a number of textual references if you're truly interested in learning more about it. Some include the necessary equations with which you can do the calculations yourself, if you've got access to tables of modified Bessel functions or a software math library which includes them.

Roy Lewallen, W7EL

art wrote:
> You know that is exactly how I see it which is contrary to what Roy is
> saying. I cannot find any corroberation of his statement that for thin
> material relative to skin depth current density is constant. Perhaps he
> has read something that forces the current flow to follow D,C.
> properties. As the current surface moves away
> from the interactive field/s the conditions on the surface certainly
> must differ.
> Hopefully, Tom with his superior knoweledge on this subject will
> intercede and share his knoweledge.
> Regards
> Art
>

2995. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 22:24:22 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <6adm12pf87ibajc82i7a1hhjh0aivkrpib@4ax.com>
Source record: 62856

On 17 Mar 2006 13:13:07 -0800, "art" <aunwin@insightbb.com> wrote:

> Perhaps he has read something that forces the current flow to follow D,C. properties.

Hmmmm, let's put this another way. Let's say you have a herd of ice cubes and you put them in a tray of oil. They sink immediately. The oil is the conductor, and the ice cubes are the charge being transferred. They sink because of buoyancy. Their weight is greater than that of the oil so this is our DC metaphor. The ice cubes use the full depth of the oil.

Now we create an AC metaphor by replacing the oil with water. The ice cubes are lighter than water, on a cubic basis, and thus they float. They cannot use the full depth of the water. The charge has been forced to the surface to conduct. You can push them underwater, but once you release them they float again. The water depth that supports them is the skin of the skin effect.

Now we create the Skin Effect metaphor. You drain the water to height that is half that of the ice cubes. The ice cubes now use the full depth of the water just as they use the full depth of the oil. However, there is less water than formerly, and less water than formerly for the oil. The skin depth is not deep enough to support the charge - resistance increases.

Oh, and if you wanted penny candy, it would cost 2 cents. One penny for the candy, and one penny for the 5% tax on the first penny. A penny doesn't have enough skin depth to support welfare.

2996. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-17 23:23:15 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121mh75g3ekkme9@corp.supernews.com>
Source record: 62857

w8ji@akorn.net wrote:
>
> Roy measured a real antenna for phase, I measured a moblile antenna for
> current.
>
> http://www.w8ji.com/agreeing_measurements.htm

Actually, I measured both phase and amplitude of the current at both ends of a toroidal inductor. It was measured at the base of a shortened vertical antenna, and also on the bench with the antenna replaced by lumped components having the same impedance as the antenna. The results were published in the October 2003 thread on this newsgroup.

Roy Lewallen, W7EL

2997. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 01:34:32 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <441b63a9$0$7325$39cecf19@news.twtelecom.net>
Source record: 62858

Richard Clark wrote:

> On 17 Mar 2006 13:13:07 -0800, "art" <aunwin@insightbb.com> wrote:
>
>>I cannot find any corroberation of his statement that for thin
>>material relative to skin depth current density is constant.
>
>
> It's simple math.
>
> For instance, you go to the store to buy penny candy. You plunk down
> the penny. The grocer says there's 5% tax on sales. 5% of 1 penny
> ultimately reduces his options. He takes the penny and gives it to
> the government. You get nothing. The grocer sells nothing. The
> government gives the penny to a billionare as a tax refund. Deprived
> of your penny candy, you get to drive through pot holes as the
> billionare helicopters over you. To show his charitable feelings, he
> scatters messages of cheer and thanks to those below. You are pulled
> over for littering, fined $1000 and put on a trash pick-up team.

I missed the part about why the billionaire gets a refund.\

It never works that way in the real world, Richard. How it works, and I'm from a retail family, is that you will get charged 2 cents for the penny candy. Except nothing costs a penny anymore, penny candy is at least 10 to 20 cents, so that is a moot argument.

And when you deal with all the combinations of price and tax, and how the retailer has to handle it, by law, the retailer loses money on average handling the tax for the state/local govt. In other words, the tax is 7%, but because of how the govt. makes the tax tables work, the retailer collects less than 7%, but is required to give the govt. exactly 7% plus a penny.

The business is almost always screwed, and the consumer is usually, not always like the seller, required to pick up the extra cost the govt. added.

tom
K0TAR

2998. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 02:30:08 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <QgKSf.44449$2O6.37222@newssvr12.news.prodigy.com>
Source record: 62859

Gene Fuller wrote:
> 1. I have looked at that figure, and I suspect many others have as well.
> There is no information given about dimensions or any other modeling
> conditions, so it is difficult to say anything more than, "Yep, there's
> a bunch of lines and numbers on that figure."

Information has been added to the graphic at:

http://www.qsl.net/w5dxp/test316.GIF

The associated EZNEC file can be downloaded from:

http://www.qsl.net/w5dxp/test316.EZ
--
73, Cecil http://www.qsl.net/w5dxp

2999. Re: Modeling question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 02:59:24 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <gIKSf.820$J43.747@edtnps90>
Source record: 62860

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:0ntoe3-dab.ln1@p400bob.personal.cox.net...
> Hi Frank/Arie
>
> Not really knowing what I was doing <grin> I tried EK and got the same bad
> average gain figure.. I also removed most of the lower part of the mast
> since its effect will be fairly minimal. No help there either.
>
> Tnxs for your comments gents. There is still the two questions though;
>
> - Does one bother to model in a "curved" wire for copper pipe joiners? I
> note Mr Cebik didnt mention it when he was talking about J poles on 2m.
>
> - Is the diameter of the source wire important?
>
> Thinking now about reducing the copper pipe diameter simply so I can model
> it properly. Then again its a pretty broad design and tuning would be
> easy...
>
> Cheers Bob VK2YQA

Hi Bob, attempting to model a curved wire will possibly lead to
over-segmentation. It is also important to avoid junctions of dissimilar
wire diameters as it can lead to errors. The source wire should therefore
be the same diameter as the rest of the structure.

73,

Frank

3000. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 04:03:28 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142654608.872051.303460@g10g2000cwb.googlegroups.com>
Source record: 62861

Tom,
I have no problem with most of what you have stated.
The last paragraph is where you actually address my question ie extra
thin material
relative to calculated skin depth for a particular frequency but then
you slide off and state that is another matter! The fact is that I am
refferring to the use of metallised mylar with antennas. Obviously the
metalised thickness could less than any "skin" thicknes.
So one has to decide I can compromise by adding more area to compensate
and by how much. I see this as possibly the most effective
change with respect to radiation since we now have forced more current
to the extreme outside surface but this is conjecture on my part.
The answer that is comming back at me is that the current
density is essentially the same but with no explanation
as to why the decay rate has changed since that which creates it has
not changed.
I find it difficult to accept that
the decay rate has changed
and intuatively I would have thought the surface current
would increase significantly.
All told I don't feel that I have
got anywhere in my quest other than forget skin depth
and just look at it as a volume problem as that is the way it is. Yes
there are what are called proximatry
effects but first we must have an understanding R.F. using a single
element alone.
Regards
Art

3001. Need help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 05:37:48 UTC
From: Richard Miller <wizzard6@optusnet.com.au>
Message-ID: <441b9cb7$0$20113$afc38c87@news.optusnet.com.au>
Source record: 62862

Hi

I was just digging around the garage and I found my old multi band trap vertical antenna LOL.. Anyway it covered 80m to 10m and I got it from Dick Smith back in the 80's that's a long time ago.. Dos anyone have a diagram for one of them I can not find mine but still looking for it.. Can any one help..

--

73's Regards,

Richard Miller
E-mail: wizzard6@optusnet.com.au

3002. First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 15:21:27 UTC
From: Basil Burgess <basilb.remove@hotmail.remove.com>
Message-ID: <dvh8htfib1@emma.aioe.org>
Source record: 62863

Hello all

I've made a first attempt at installing an antenna. It's a 2 Slinky dipole strung across my roof. I chose the Slinky dipole because it promised to give good (if not excellent) results in a relatively short antenna. I strung it between two 2' wood standards at the top of the roof. The roof is about 25-30' from the ground. I used the twin feedline, which is about 18', and the insulators from a GSRV Mini antenna I bought. The twinline is connected with a balun to a 50' RG-8X cable that runs across the roof and down to my window. I've temporarily led it in through the window. The excess cable, probably about 20 feet or so, is loosely coiled between the inner and outer window.

The reception is great. I was picking up DX from Europe. However, I got no answers to any attempt to call out. I wasn't expecting DX for my very first QSO, but I was hoping for someone.

I think it may be because the feedline runs along the roof rather than hanging in free space. Could this be the case? The SWR was terrible; it took my automatic tuner a lot of work to get a match, but I was getting 1.5 or less on 80 and 40.

Thank you for any advice you can offer.

73
Basil Burgess, VE3JEB

My email is basilb which is through hotmail

3003. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 15:38:50 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <eQVSf.54852$H71.31027@newssvr13.news.prodigy.com>
Source record: 62864

Basil Burgess wrote:

> Hello all
>
> I've made a first attempt at installing an antenna. It's a 2 Slinky dipole
> strung across my roof. I chose the Slinky dipole because it promised to give
> good (if not excellent) results in a relatively short antenna. I strung it
> between two 2' wood standards at the top of the roof. The roof is about
> 25-30' from the ground. I used the twin feedline, which is about 18', and
> the insulators from a GSRV Mini antenna I bought. The twinline is connected
> with a balun to a 50' RG-8X cable that runs across the roof and down to my
> window. I've temporarily led it in through the window. The excess cable,
> probably about 20 feet or so, is loosely coiled between the inner and outer
> window.
> I think it may be because the feedline runs along the roof rather than
> hanging in free space. Could this be the case? The SWR was terrible; it took
> my automatic tuner a lot of work to get a match, but I was getting 1.5 or
> less on 80 and 40.

Actually, the entire antenna design is terrible. What is the SWR
on the coax at the balun? Steel is not a good conductor to use in
an antenna at RF frequencies.
--
73, Cecil http://www.qsl.net/w5dxp

3004. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 15:42:07 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <jTVSf.54853$H71.38430@newssvr13.news.prodigy.com>
Source record: 62865

Gene Fuller wrote:
> 1. I have looked at that figure, and I suspect many others have as well.
> There is no information given about dimensions or any other modeling
> conditions, so it is difficult to say anything more than, "Yep, there's
> a bunch of lines and numbers on that figure."

I have added the information gathered in this thread and
others to my web page. Please click on my web page below
and scroll down to the bottom of the page.
--
73, Cecil http://www.qsl.net/w5dxp/current.htm

3005. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 17:17:13 UTC
From: richardharrison@webtv.net
Message-ID: <28826-441C4099-1651@storefull-3255.bay.webtv.net>
Source record: 62866

This thread ran almost as long as "47KW CB mobile, was Re: CW = Engineer?"

Not sure which holds the duration record.

Cheers, Richard Harrison, KB5WZI

3006. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 18:10:11 UTC
From: Basil Burgess <basilb.remove@hotmail.remove.com>
Message-ID: <dvhier$g48$1@emma.aioe.org>
Source record: 62867

Thank you for your response

I'm afraid I don't have a way of measuring the SWR at the coax.

Should I consider connecting the balun directly to the slinkys rather than
at the end of the twinline? Should the twinline be supported so that it is
not lying on the roof?

Or should I just dismantle it and go back to positioning the GSRV Mini.
That, at least, is a copper dipole.

Thanks again

Basil, VE3JEB

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:eQVSf.54852$H71.31027@newssvr13.news.prodigy.com...
>
> Actually, the entire antenna design is terrible. What is the SWR
> on the coax at the balun? Steel is not a good conductor to use in
> an antenna at RF frequencies.
> --
> 73, Cecil http://www.qsl.net/w5dxp

3007. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 18:15:41 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <121ojih732ucf6f@corp.supernews.com>
Source record: 62868

Richard Harrison wrote:
> This thread ran almost as long as "47KW CB mobile, was Re: CW =
> Engineer?"
>
> Not sure which holds the duration record.
>
> Cheers, Richard Harrison, KB5WZI
>
I counted almost 500 entries. Cecil had almost 25% of them.

Dave N

3008. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 18:31:12 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QIYSf.48328$F_3.41829@newssvr29.news.prodigy.net>
Source record: 62869

Basil Burgess wrote:
> Or should I just dismantle it and go back to positioning the GSRV Mini.
> That, at least, is a copper dipole.

I won't presume to tell you what you "should" do. There are
too many unknowns in your system. You may need to spring for
an antenna analyzer, like the MFJ-259B. If it were me, I
would junk the slinky antenna. At least the half-sized
G5RV is known to work relatively well on 40m, 20m, 10m,
and 6m.
--
73, Cecil http://www.qsl.net/w5dxp

3009. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 18:41:24 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ovYSf.48331$F_3.30109@newssvr29.news.prodigy.net>
Source record: 62870

David G. Nagel wrote:
> I counted almost 500 entries. Cecil had almost 25% of them.

I kicked it off with "Current in loading coils". Reg then
responded with "Current through coils" and the rest is
history. When one is up against most of the r.r.a.a gurus,
all at the same time, one needs to make a lot of postings.
--
73, Cecil http://www.qsl.net/w5dxp

3010. aluminium element segment corrosion & weather proofing... ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:04:19 UTC
From: Kba <kba@nic.fi>
Message-ID: <TQYSf.274$at6.17@read3.inet.fi>
Source record: 62871

Hi all

just have some plans for yagi construction, but yagi tapering
segments may need some corrosion & weather protection...
Any recommendations ?
Aluminum powder or grease ? or without ??

rgds Kari

3011. Re: aluminium element segment corrosion & weather proofing... ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:16:51 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <D0ZSf.48338$F_3.16868@newssvr29.news.prodigy.net>
Source record: 62872

Kba wrote:
> just have some plans for yagi construction, but yagi tapering
> segments may need some corrosion & weather protection...
> Any recommendations ?
> Aluminum powder or grease ? or without ??

There's a conductive compound that reduces oxidation. It's
sold under various brand names. Oxiguard comes to mind
but that may be a toothpaste compound or some such. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3012. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:23:54 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvhmoa$529$1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62874

> I counted almost 500 entries. Cecil had almost 25% of them.
>
> Dave N
==========

- - - and I get the impression nobody learned anything!

Problems should be handed over to the sewer rats in Rio de Janerio to
sort out, rather than culling them.

Reg.

3013. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:23:57 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <h7ZSf.6523$k75.4660@newsread3.news.atl.earthlink.net>
Source record: 62873

"Basil Burgess" <basilb.remove@hotmail.remove.com> wrote in message
news:dvhier$g48$1@emma.aioe.org...
> Thank you for your response
>
> I'm afraid I don't have a way of measuring the SWR at the coax.
>
> Should I consider connecting the balun directly to the slinkys rather than
> at the end of the twinline? Should the twinline be supported so that it is
> not lying on the roof?
>
> Or should I just dismantle it and go back to positioning the GSRV Mini.
> That, at least, is a copper dipole.
>

As Cecil said , it is hard to tell you what to do with the limiated information you have given. Nothing simple beats the good old dipole antenna. Problem is it is mostly a one band antenna. I have up an off center fed antenna and it seems to work fair for all the harmonic bands. The swr is a bit high on the WARC bands. It is about 130 feet long with a 4:1 balun in the center and fed with rg-8x coax.

Even with the antenna you have up you should be able to work something if the rig will load it. It may be that the internal tuner to the rig is not able to match the antenna and most of the power is not getting out of the rig. The inernal tuners are only good for about a 3:1 or less swr to the antenna on most rigs.
Cecil mentioned an expensive MFJ device. It is probably way too much over kill for most hams. One of the least expensive SWR meters will tell you if the antenna is anywhere in the ball park and which way you need to trim the antenna if you take several readings across the band.

3014. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:54:25 UTC
From: Basil Burgess <basilb.remove@hotmail.remove.com>
Message-ID: <dvhohorqa1@emma.aioe.org>
Source record: 62875

Thank you, Ralph

I'm sorry if I am giving inadequate information. Besides the basic description of the antenna, I'm not sure what else to offer. I doubt it took anyone long to realize that I am a novice and have as much info on antennas as one learns for the Canadian basic exam, and and can glean from a borrowed copy of the ARRL Antenna Book.

The only additions I have are that on closer inspection, the balun is Van Gorden's (the manufacturer of the original antenna) Hi-Q Center Insulator. Also, I am using an external automatic tuner, a Z-11 Pro by LDG. It apparently tunes the antenna down to an SWR of <1.5, but doesn't have the means to give a more accurate figure. My FT-875 displays SWR, as a bar display, but when the tuner has done its job, the rig seems to display no SWR bars, which I take to mean the rig sees a 1:1 or close to it. Still, I guess that's no guarantee that the power is being used efficiently.

Anyway, thanks again for your help

73
Basil Burgess, VE3JEB

3015. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 19:57:32 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <MCZSf.57481$Jd.28122@newssvr25.news.prodigy.net>
Source record: 62776

Reg Edwards wrote:
> - - - and I get the impression nobody learned anything!

You think nobody learned anything from the fact that
measuring standing wave current phase is meaningless?
If nobody learned anything, they would no doubt still
be contributing to the technical discussion.

Here's what I think happened. Person A and Person B
engage in an argument and both are wrong. Person A
believes he cannot possibly be wrong so he digs in and
argues his rigid position. Person B realizes that he may
be wrong and uses the scientific method to fine tune his
argument thus correcting any errors along the way.

Which person has the advantage and is likely to win
the argument?
--
73, Cecil http://www.qsl.net/w5dxp

3016. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:03:12 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62778

The best, all round, all band, antenna is a high centre-fed dipole of
no particular length, fed with an open-wire feedline of no particular
length or impedance, all the way to the shack, used with a choke-balun
and an unbalanced tuner.

It is good down to the frequency at which the dipole is about
1/3-wavelength long.

Simplicity = efficiency.

Once tried you will never return to anything else.

Reg.

3017. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:03:20 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <clZSf.57484$Jd.33257@newssvr25.news.prodigy.net>
Source record: 62777

Basil Burgess wrote:
> It apparently tunes the antenna down to an SWR of <1.5, ...

An antenna tuner doesn't change the SWR between the tuner
and the antenna. If it's 100:1 before the tuner does its
thing, it is still 100:1 after the tuner does its thing.
The extra feedline losses are caused by that unchanging SWR.
--
73, Cecil http://www.qsl.net/w5dxp

3018. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:12:51 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142712771.878378.237860@e56g2000cwe.googlegroups.com>
Source record: 62779

Please allow me to share other thoughts on this subject in the hope
that someone can point to error that is contributing to my personal
problem Skin depth relates to decay or true resistance,as the current
penetrates
the conductor layers will form due to time involved
and will be seen as differing phase levels. The majority of this
decaying
energy is absorbed by the element and constitutes "true"
resistance similar to D.C. The energy layer at the very surface of an
element can react or change phase as quickly as the current changes
that is traveling along its surface and can immediatly
show a reaction by generating a field in its immediate vicinity which
one can call a radiation field A field created by the changed of
current flow at the surface where resistance can be close to zero and
can be seen as part of the resistance portrayed as "radiation"
resistance. But as
the current enters deeper into the conductor its phases changes during
the penetration time and changes more as it struggles back to the
conductor surface where often the phase of the surface current changes
before it can get back to the surface and help with the field formation
exercise
because in the meantime the surface current phase has changed again and
its energy carrying capablities become
totaly heat related
without contributing
to field generation.
Fortunately some layers of current flow are close enough to the surface
and a portion and provides a field at the surface albiet weaker than
the first generated line of field because of time change and decay or
heat loss.
Thus the radiation resistance of its particular travel will contribute
to the overall "radiation resistance" but it generated losses
which do not contribute to radiation. Continued on next posting
Art

3019. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:14:18 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <g7qo12diba5v0d65bur8r8ga9qd097lbtr@4ax.com>
Source record: 62780

On Sat, 18 Mar 2006 14:54:25 -0500, "Basil Burgess"
<basilb.remove@hotmail.remove.com> wrote:

>Thank you, Ralph
>
>I'm sorry if I am giving inadequate information. Besides the basic
>description of the antenna, I'm not sure what else to offer. I doubt it took
>anyone long to realize that I am a novice and have as much info on antennas
>as one learns for the Canadian basic exam, and and can glean from a borrowed
>copy of the ARRL Antenna Book.
>
>The only additions I have are that on closer inspection, the balun is Van
>Gorden's (the manufacturer of the original antenna) Hi-Q Center Insulator.
>Also, I am using an external automatic tuner, a Z-11 Pro by LDG. It
>apparently tunes the antenna down to an SWR of <1.5, but doesn't have the
>means to give a more accurate figure. My FT-875 displays SWR, as a bar
>display, but when the tuner has done its job, the rig seems to display no
>SWR bars, which I take to mean the rig sees a 1:1 or close to it. Still, I
>guess that's no guarantee that the power is being used efficiently.
>
>Anyway, thanks again for your help
>
>73
>Basil Burgess, VE3JEB

For a first attempt, it sounds like you've built a complicated affair:
slinkies, twinlead, balun, coax, tuner, etc. You might try the other
extreme, simple. A dipole of two straight wires cut to frequency, and
a length of coax to the rig. Make the antenna a little long, and use
your rig's swr meter to adjust the length down to resonance.

bob
k5qwg

>

3020. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:21:31 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <7spo12di64otinqkj0eanefcufnrl46dpv@4ax.com>
Source record: 62781

On Sat, 18 Mar 2006 10:21:27 -0500, "Basil Burgess"
<basilb.remove@hotmail.remove.com> wrote:

>Hello all
>
>I've made a first attempt at installing an antenna. It's a 2 Slinky dipole
>strung across my roof. I chose the Slinky dipole because it promised to give
>good (if not excellent) results in a relatively short antenna. I strung it

There is nothing in your post to indicate how long or short your
antenna is. Perhaps it is a well known design and I just haven't heard
of it in my limited experience.

You say how difficult the coax was to match with an ATU, that is a big
hint that the coax is operating at high VSWR. You say the SWR was
terrible, what does that mean, do you have the numbers? Coax operated
at high VSWR for significant length is quite lossy.

If the impedance presented to the tuner is extreme, you can expect
excessive losses there too.

The ambient noise on low HF bands is very high compared to the noise
floor in your receiver. An antenna system could be seriously lossy,
and yet still allow you to hear all signals above the noise (though at
reduced S meter deflection). Beware of depending on a simplified
receiver test to infer transmit performance.

Owen
--

3021. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:33:56 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvhqrk$2fk$1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62782

Art, it's very unlike you, but your message sounds like a load of
gobble-de-gook to me.

What is your point? Are you asking a question? Can you summarise in
one sentence of few words of plain English.

Reg.

3022. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:44:15 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <zi_Sf.523$hC.477@trnddc08>
Source record: 62783

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:MCZSf.57481$Jd.28122@newssvr25.news.prodigy.net...
> Reg Edwards wrote:
>> - - - and I get the impression nobody learned anything!
>
> You think nobody learned anything from the fact that
> measuring standing wave current phase is meaningless?
> If nobody learned anything, they would no doubt still
> be contributing to the technical discussion.
>
> Here's what I think happened. Person A and Person B
> engage in an argument and both are wrong. Person A
> believes he cannot possibly be wrong so he digs in and
> argues his rigid position. Person B realizes that he may
> be wrong and uses the scientific method to fine tune his
> argument thus correcting any errors along the way.
>
> Which person has the advantage and is likely to win
> the argument?
> --
> 73, Cecil http://www.qsl.net/w5dxp

Hi Cecil

I've read more than 80% of the posts in this thread. I still dont
understand the objective. BUT, I sure have learned a few things, thanks to
you guys who do what is being soughtafter.

Jerry

3023. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:45:02 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns978A81AFA58B6doldridgsprintca@64.59.135.159>
Source record: 62784

Cecil Moore <mycall@hotmail.com> wrote in news:cIZSf.57484$Jd.33257
@newssvr25.news.prodigy.net:

> Basil Burgess wrote:
>> It apparently tunes the antenna down to an SWR of <1.5, ...
>
> An antenna tuner doesn't change the SWR between the tuner
> and the antenna. If it's 100:1 before the tuner does its
> thing, it is still 100:1 after the tuner does its thing.
> The extra feedline losses are caused by that unchanging SWR.

Yep, though feedline losses are not usually so large as to preclude at least SOME QSO's on 80 and 40 unless that SWR is AT LEAST 50 (especially on 80m). Of course poor quality coax and twinlead that is touching metal can really increase those losses, even though they actually REDUCE the SWR that the tuner is seeing.

A slinky is such a poor antenna to begin with (basically a coil of iron), it's probably best to just feed it in the center with good quality 450 ohm line (which you then dress properly all the way to the tuner's balanced output--if the tuner has one or a balun located AT the tuner if it doesn't). Next best would be to feed it with decent COAX like LMR400 or better.

For example, my balcony whip gives an SWR of almost 6 on CW at 3652. I could lower this by adding a capacity rig at the stinger end of the hamstick, but I'm a bit too lazy to keep going out and taking it off and the thing is resonant on 3729 where our phone net meets. But it's still 88 percent as efficient as it is at resonance when tuned up on 3652 with my tuner, which can tune that SWR flat. (We won't talk about how inefficient an 8ft antenna actually is on these frequencies, but you get the point).

And that's using RG8X (Belden 9258). Better coax would improve that some. If the slinky actually has an SWR of 100, then 450 ohm ladder line would introduce additional loss, due to SWR of 2.04 db per 100 feet.

Moral of the story, when using inefficient antennas with weird impedances, then make sure you use good, low-loss feedline and keep it short as you can.

--
Dave Oldridge+
ICQ 1800667

3024. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:45:38 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvhrhihbh1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62785

Owen, you know as well as I do his SWR meter does not indicate SWR on the feedline where it might matter. So some of your comments don't make much sense.

Reg.

3025. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 20:49:59 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142714999.478700.19080@z34g2000cwc.googlegroups.com>
Source record: 62786

Continued
As can be seen the lossless reaction occures at a infitesimal depth
of the conductor where penetration is close to zero and the energy
transformation is close to being a maximum.
The reverse occurs
when a conductor
is in the way of the advancing field.
The action and reaction chain of events occur again
only this time it is the field that is creating current flow which then
creates both radiation by returning energy back to the immediate field
but not equal and opposite like a reflector would.
So ideally current
penetration of a conductor should
be curtailed either by having a lossless conductor
or by ensuring the surface layer constrains penetration of energy
enabling it to react in an energy conserving
manner. Yes overall resistance
will rise but resistance due to decay will be close to absent.
So the question is can aluminised mylar be used to advantage where skin
depth is more than the thickness
of the aluminum, tho I am quite sure the mylar carrier is going to
muddy up the waters.
Hopefully the above
possibly erronoius thoughts will help those who could help me by
allowing understanding of my dillema and question.
Regards
Art
Yes Roy ofcourse I am interested in the question why else would I post
and place myself in the inevitable firing
line that will arise from certain miscreants?

3026. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:07:28 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvhsqgklf1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62787

> Hi Cecil
>
> I've read more than 80% of the posts in this thread. I still
dont
> understand the objective. BUT, I sure have learned a few things,
thanks to
> you guys who do what is being soughtafter.
>
> Jerry
==

Ah, but how do you know you learned the RIGHT things? Or what you learned was true and correct?

The participants in the argument NEVER agreed on ANYTHING. So what can bystanders do?

I learned far more about people than I did about current through coils. Quite interesting nevertheless.

Reg, G4FGQ.

3027. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:14:41 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <i1uo12l6ddj6t59q0jmh0m0ja1su66ak5p@4ax.com>
Source record: 62788

On Sat, 18 Mar 2006 19:57:32 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Reg Edwards wrote:
>> - - - and I get the impression nobody learned anything!
>
>You think nobody learned anything from the fact that
>measuring standing wave current phase is meaningless?
>If nobody learned anything, they would no doubt still
>be contributing to the technical discussion.
>
>Here's what I think happened. Person A and Person B
>engage in an argument and both are wrong. Person A
>believes he cannot possibly be wrong so he digs in and
>argues his rigid position. Person B realizes that he may
>be wrong and uses the scientific method to fine tune his
>argument thus correcting any errors along the way.
>
>Which person has the advantage and is likely to win
>the argument?

I tried learning something. I didn't get to read the whole thread so
may have missed the important part?

When the measurements of the coil were done on the bench it seems that
it was done with 50 ohms in and 50 ohms out. That hardly seems like it
would give the same information as when the coil was in actual use as
an antenna loading coil.

Rather than a 50 ohm load how about if a load was placed at the end of
the coil to simulate the antenna, a resistor and capacitor to take the
place of the antenna impedance and reactance. Then measure the current
in and out and the phase shift.

73
Gary K4FMX

3028. Re: Coax To Coax Noise transfer ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:16:19 UTC
From: Ian Jackson <IanJacksonRemoveThisBit@g3ohx.demon.co.uk>
Message-ID: <2e+jB+QjiHHEFwkT@g3ohx.demon.co.uk>
Source record: 62790

In message <121bjjll54og800@corp.supernews.com>, Dave Platt
<dplatt@radagast.org> writes
>In article <itidnXfpgJIbVojZRVn-sw@comcast.com>,
>Robert11 <rgsros@notme.com> wrote:
>
>>Hello:
>>
>>Am about to start stringing some coax from an outside Receive-Only antenna's
>>Balun up to
>>my study where the receiver is. (30 MHz on down listening)
>>
>>The easiest thing for me is to run it alongside an existing (looks like
>>coax, but am not sure) wire
>>that Comcast has strung for my broadband service to the PC. Actually to
>>their always-on modem which is then
>>connected to the PC.
>>
>>Was wondering about coax to coax noise transfer into the receiving antennas
>>coax from being right alongside
>>this Comcast stuff.
>>
>>Think there's any reason for concern ?
>
>If the Comcast cable was installed properly, there shouldn't be a
>problem. Coax cable with high-quality shielding leaks very little
>signal, and the cable companies have to use well-shielded cable in
>their plants in order to avoid leakage of channels whose fall into the
>airband, amateur, and public-safety allocations.
>
>Also, I don't think that Comcast's plant is likely to carry much, if
>any content below 30 MHz.
>

You're forgetting about the UPSTREAM data and interactive signals (QPSK
and/or QAM, from the cable modem or the set-top TV box). These will be
in the range of (probably) 15MHz to 42MHz. The max transmit level will
be typically 40dBmV (max around 56dBmV). The actual frequency used will
depend on the local area (segment).

The upstream levels are higher than the downstream (typically 10dBmV
analogue, 0dBmV QAM). However, where possible, the cable operator may be
avoiding the HF amateur frequencies, in order to minimise any problems
of ingress.

>There's some possibility, I suppose, of some leakage of noise from the
>cable modem itself back up along the outside of the Comcast coax. You
>might want to consider buying a few snap-on interference-suppression
>ferrites, and snap 'em onto the outside of both cables (e.g. where the
>Comcast cable leaves the building, where your receiver coax enters the
>building, and maybe a few more scattered along one or both coaxes).
>This would help block or dissipate any RF currents flowing on the
>outsides of the coaxes.
>

This is certainly a good idea 'just in case', and won't hurt any.
Ian.
--

3029. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:20:04 UTC
From: Baloo <w.d.mcrobie@NOSPAMorcon.net.nz>
Message-ID: <441c79e1@news.orcon.net.nz>
Source record: 62789

Reg Edwards wrote:
> Owen, you know as well as I do his SWR meter does not indicate SWR on
> the feedline where it might matter. So some of your comments don't
> make much sense.
> ----
> Reg.
>
>
Just my two cents worth

For my first transmission aerial I made a three band trapped dipole of split figure 8 mains cable(80,40 and 20) and fed it with coax, and strung the centre about 25 foot in the air and falling to about 10 foot at the ends. This has enabled me to work Britain, Spain, Italy and the US with 40 odd watts SSB. SWR is not perfect and perhaps I should prune it a little. The hardest part was tuning the traps. I believe this design came from the arrl handbook.

I know that its not perfect and perhaps I should refine it, but for a starter aerial I have found it very good. Having said that there are things about it I want to experiment with.

One thing I have found invaluable is more experienced local hams who will help.

There are people much more knowledgeable about antennas here than me, but I am very happy with my home-brew antenna.

hth

73

Warren
ZL3LC

3030. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:28:38 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142717318.221163.275790@u72g2000cwu.googlegroups.com>
Source record: 62792

Reg, you would be most offended if someone read one line only of what
you posted and then responded
I am sure that such actions
would drive even you to drink in excess. Perhaps it would be better
for you to return to the pub and leave me alone
Cheers
Art

3031. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:28:41 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142717320.954955.182440@j33g2000cwa.googlegroups.com>
Source record: 62793

Reg, you would be most offended if someone read one line only of what
you posted and then responded
I am sure that such actions
would drive even you to drink in excess. Perhaps it would be better
for you to return to the pub and leave me alone
Cheers
Art

3032. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:29:55 UTC
From: Basil Burgess <basilb.remove@hotmail.remove.com>
Message-ID: <dvhu4q$ou6$1@emma.aioe.org>
Source record: 62794

Thank you all for your help. The consensus seems to be that the overall antenna is ill-conceived. I will revert the design to the original antenna and work out how to rig it.

Thanks again for the information and education. I guess when one of you hears me, you'll know I worked it all out :-)

73 to all
Basil Burgess, VE3JEB

3033. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:33:32 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <voto12hrv2t1dk6nlith6k3gogbjshc0qn@4ax.com>
Source record: 62795

On Sat, 18 Mar 2006 20:45:38 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Owen, you know as well as I do his SWR meter does not indicate SWR on
>the feedline where it might matter. So some of your comments don't
>make much sense.

Reg,

If Basil measured the SWR at the ATU end of the RG8/X (either directly or effectively with the ATU in bypass configuration if that is possible), that would provide information that could be used to estimate whether losses in the RG8/X were reasonable, and if reasonable, how reasonable.

The RG8/X is probably the highest risk of serious loss in the antenna system.

For clarity, I am not at all interested in the VSWR indicated looking into the ATU unless the ATU is in the bypass configuration, in which case the measurement is a valid indicator of the VSWR on the RG8/X.

The line loss of 50' of RG8/X at 3.6MHz with a source end VSWR of 8:1 is around 1dB, and probably quite acceptable. Beyond a source end VSWR of 20:1, losses increase quickly to infinite loss at source end VSWR around 28:1. If the indicated reflected *power* at the ATU end of the coax is less than about 80%, or VSWR less than about 20, coax loss is probably manageable.

Owen
--

3034. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:33:38 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <neKdnceFMfHB5oHZnZ2dnUVZ_sCdnZ2d@adelphia.com>
Source record: 62791

art wrote:
>... But as
> the current enters deeper into the conductor its phases changes during
> the penetration time and changes more as it struggles back to the
> conductor surface where often the phase of the surface current changes
> before it can get back to the surface and help with the field formation
> exercise

I think you are misusing the term "radiation resistance" in this exploration, but I think an important point in any understanding of skin effect is that currents of different depths have different phases, compared to the surface current. They lag it. They are the wire's memory of the previous cycle. In this respect, they remind me of the current in a pole shading winding of a shaded pole motor.

3035. Diamond antenna repair parts

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:33:56 UTC
From: Terry Sellick <tsellick@ieee.org>
Message-ID: <50c3e$441c7cc3$4087da85$19612@FOXVALLEY.NET>
Source record: 62796

Does anyone know if Diamond offers replacement repair parts for their antennas? I had an X510MA 2m/70cm vertical blow down in a recent storm. The lower fiberglass section broke.

Thanks & 73
Terry WA9TTY

3036. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 21:43:29 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142718209.506498.9930@u72g2000cwu.googlegroups.com>
Source record: 62797

I tried to avoid that. Radiation resistance pertaines to that contained
in the radiation phenomina
exchange of energy which is of main interest to us.
This obviously is not the total resistance involved in the energy
exchange as heat does not generate
radiation. The word ":decay" aptly describes that.
Thanks for the comment,
anything helps at this point
Art

3037. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:00:50 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <mq%Sf.54912$H71.24929@newssvr13.news.prodigy.com>
Source record: 62798

Jerry Martes wrote:
> I've read more than 80% of the posts in this thread.
> I still dont understand the objective.

Since the foundation of other's measurements was
the use of standing wave current phase to prove the
percentage of a wavelength occupied by a loading
coil is zero, my objective was simple: To prove
that the standing wave current, with its unchanging
phase, cannot be used to make a valid measurement
of the percentage of a wavelength occupied by a loading
coil.

I proved that using the standing wave current phase to
measure the percentage of a wavelength occupied by a
wire or a whip also yields an answer of zero. If the
coil plus the whip both occupy a percentage of a
wavelength equal to zero, all sorts of laws of physics
are violated. Not to mention a full length 1/2WL wire
dipole occupying a percentage of a wavelength equal
to zero.
--
73, Cecil http://www.qsl.net/w5dxp

3038. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:04:38 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <Wt%Sf.583159$qk4.356897@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62799

Cecil,

I downloaded your EZNEC file, and I played around for a while with both the original and several variations.

There were no surprises for the fundamental frequency case. When I modeled a real bugcatcher coil, or at least as real as those on the GLA web site, the current at the top of the coil was 85% to 90% of the base current. I think it is more typical that a bugcatcher coil is at least 4 turns per inch rather than the 2 turns per inch in your example. I also attempted to model the coil tested by Tom, W8JI, and reported earlier in this thread. This coil pushes EZNEC both in terms of the number of segments and the short length of the segments, but in any case it appears that his coil when placed in your antenna model has higher current at the top than you reported.

I ignored the harmonic examples. Who ever said that a coil would be a lumped inductor when it is operated above its self resonant frequency? Even your new guru from Mount Olympus, Dr. Teslacoil, does not discuss such things.

In summary, the world of RF electrical phenomena is still intact. I don't believe I have anything more to add, and I plan to back to sleep.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> 1. I have looked at that figure, and I suspect many others have as
>> well. There is no information given about dimensions or any other
>> modeling conditions, so it is difficult to say anything more than,
>> "Yep, there's a bunch of lines and numbers on that figure."
>
>
> Information has been added to the graphic at:
>
> http://www.qsl.net/w5dxp/test316.GIF
>
> The associated EZNEC file can be downloaded from:
>
> http://www.qsl.net/w5dxp/test316.EZ

3039. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:09:26 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <qy%Sf.583179$qk4.263433@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62800

Cecil,

I could have sworn that you were insisting the phase still had meaning
in a standing wave environment. It only required the correct measurement
technique.

I am glad to see that you have now adopted the truth, even if the
history appears a bit shaky.

73,
Gene
W4SZ

Cecil Moore wrote:
> Jerry Martes wrote:
>
>> I've read more than 80% of the posts in this thread.
>
> > I still dont understand the objective.
>
> Since the foundation of other's measurements was
> the use of standing wave current phase to prove the
> percentage of a wavelength occupied by a loading
> coil is zero, my objective was simple: To prove
> that the standing wave current, with its unchanging
> phase, cannot be used to make a valid measurement
> of the percentage of a wavelength occupied by a loading
> coil.
>
> I proved that using the standing wave current phase to
> measure the percentage of a wavelength occupied by a
> wire or a whip also yields an answer of zero. If the
> coil plus the whip both occupy a percentage of a
> wavelength equal to zero, all sorts of laws of physics
> are violated. Not to mention a full length 1/2WL wire
> dipole occupying a percentage of a wavelength equal
> to zero.

3040. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:11:25 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <hA%Sf.54915$H71.34452@newssvr13.news.prodigy.com>
Source record: 62801

Gary Schafer wrote:
> Rather than a 50 ohm load how about if a load was placed at the end of
> the coil to simulate the antenna, a resistor and capacitor to take the
> place of the antenna impedance and reactance. Then measure the current
> in and out and the phase shift.

The measurement problem is harder than it looks. Here's
a quote from "Field and Waves in Modern Radio", Ramo and
Whinnery, 2nd edition, page 227.

"Difficulties in applying these equations arise since
the current and charge distributions are not known, but
are determined by the field distributions which are
calculated from the retarded potentials which depend
upon current and charge distribution - a vicious circle!
The exact solution of this problem is usually of
prohibitive difficulty."
--
73, Cecil http://www.qsl.net/w5dxp

3041. OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:22:01 UTC
From: Richard Miller <wizzard6@optusnet.com.au>
Message-ID: <441c880a$0$7604$afc38c87@news.optusnet.com.au>
Source record: 62802

Hi

I was just digging around the garage and I found my old multi band trap vertical antenna LOL.. Anyway it covered 80m to 10m and I got it from Dick Smith back in the 80's that's a long time ago.. Dos anyone have a diagram for one of them I can not find mine but still looking for it.. Can any one help..

73's Regards,

Richard Miller
E-mail: wizzard6@optusnet.com.au

3042. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 22:43:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <C20Tf.54916$H71.17543@newssvr13.news.prodigy.com>
Source record: 62803

Gene Fuller wrote:
> I could have sworn that you were insisting the phase still had meaning
> in a standing wave environment.

I know that's what you thought, but you were mistaken.
By thinking that, you accidentally posted some support
for my side of the argument. Thanks very much.
--
73, Cecil http://www.qsl.net/w5dxp

3043. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 23:26:29 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <FG0Tf.54920$H71.19537@newssvr13.news.prodigy.com>
Source record: 62804

Gene Fuller wrote:
> I think it is more typical that a bugcatcher coil is at least 4
> turns per inch rather than the 2 turns per inch in your example.

I tried 4 turns per inch. EZNEC didn't like it.

> I ignored the harmonic examples. Who ever said that a coil would be a
> lumped inductor when it is operated above its self resonant frequency?

Whoever said that a coil would be a lumped inductor at 60%
of its self resonant frequency? Did you say that?

Used at 5.89 MHz, self-resonant at 9.75 MHz, phase-reversing at
11.78 MHz. Sounds a lot like a slow wave transmission line to me.
5.89 is 60% of the self-resonant frequency. Dr. Corum says that
the lumped-circuit fails above a 15% value. 60% is far above 15%.

> In summary, the world of RF electrical phenomena is still intact.

Of course, and more than that, I took its side in the argument.

When I reported measuring no phase shift up and down a dipole,
Tom, W8JI, said my measurements were wrong. But EZNEC says
the same thing as I.
--
73, Cecil http://www.qsl.net/w5dxp

3044. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-18 23:48:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <q%0Tf.54923$H71.54162@newssvr13.news.prodigy.com>
Source record: 62805

Gene Fuller wrote:
> I ignored the harmonic examples. Who ever said that a coil would be a
> lumped inductor when it is operated above its self resonant frequency?

Oh, I forgot to ask you a technical question, Gene. Given that
at 11.78 MHz, the current at the bottom of the coil is 0.17 amps
and the current at the top is 2.0 amps, how do you explain those
values if the current is flowing up through the coil? The details
are at the bottom of the following web page.
--
73, Cecil http://www.qsl.net/w5dxp/current.htm

3045. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 00:28:50 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <6B1Tf.1266$hC.712@trnddc08>
Source record: 62806

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dvhsqgklf1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
>
>> Hi Cecil
>>
>> I've read more than 80% of the posts in this thread. I still
> dont
>> understand the objective. BUT, I sure have learned a few things,
> thanks to
>> you guys who do what is being soughtafter.
>>
>> Jerry
> ====================================
>
> Ah, but how do you know you learned the RIGHT things? Or what you
> learned was true and correct?
>
> The participants in the argument NEVER agreed on ANYTHING. So what can
> bystanders do?
>
> I learned far more about people than I did about current through
> coils. Quite interesting nevertheless.
> ----
> Reg, G4FGQ.

Hi Reg

I note that you question my ability to know if I learned the Right Things.
How do we ever know?? I wrote that I learned a FEW things. Let me be the
judge about whats right for me.
I dont know if you wrote the question about my learning the Right thing to
impune my ability to sort out the Right from the NotRight, or you wrote to
imply that were some statements made in the thread that werent right.
I submit to you that if you find the need to show where any statement made
in the antenna group that isnt True and Correct, you can correct them
directly.
By my standards, all the posts in this thread were worthy of being read.
It is even possible that you learn something from these guys on the
antenna group when you take time to read and think.
Please dont stop trying to learn Reg, you are a great source of good
information and you can improve if you try.

Jerry

3046. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:06:50 UTC
From: w8ji@akorn.net
Message-ID: <1142734010.632531.71060@v46g2000cwv.googlegroups.com>
Source record: 62807

Gary Schafer wrote:

> When the measurements of the coil were done on the bench it seems that
> it was done with 50 ohms in and 50 ohms out. That hardly seems like it
> would give the same information as when the coil was in actual use as
> an antenna loading coil.

A bench test is fine. An inductor is an inductor.

The only problem with a bench test is simulating the load impedance presented by the antenna and of course strong local fields generated by the antenna are missing, but the actual error can be reasonably small.

However, inductors were measured in an actual antenna. I measured current, and Roy Lewallen measured phase and current.

I couldn't measure time delay or phase in my actual antenna because I was measuring a mobile antenna. There wasn't any way to measure phase without perturbing the system and rendering any data unreliable.

This long painful thread (it's been going on years now) started because K3BU claimed a loading inductor had most of the current in the first few turns. I made some measurements
and posted them at:

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

These measurements show exactly what anyone who understands loading coils would expect, that it is stray C in comparison to load impedance on the inductor that determines any current taper, and that for a reasonable sized inductor the taper is very small.

I wrote a description at:

http://www.w8ji.com/mobile_and_loaded_antenna.htm

I can't see anything in there that needs changed, based on what I've read here in this thread.

> Rather than a 50 ohm load how about if a load was placed at the end of
> the coil to simulate the antenna, a resistor and capacitor to take the
> place of the antenna impedance and reactance. Then measure the current
> in and out and the phase shift.

I've done that also.

You are absolutely correct Gary, it is possible to come very close with a lumped load on the inductor *except* of course the surroundings are

different.

The inductor test fixture I normally use is a large copper box made from blank double sided PC board sheets. It has vacuum caps (very high Q) and various detectors and probes.

I have to characterize large inductors on occasion as part of designing RF systems. It's less scary than turning on a 50kW PA and having things misbehave at full power, or building a phasing system or phasing/ATU combo that doesn't work.

73 Tom

3047. Reducing number of elements in this design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:20:44 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <0e3Tf.9944$dy4.8651@news-server.bigpond.net.au>
Source record: 62808

Hi,

Would someone be able to advise me how I would calculate new dimensions
to scale the 9-Element Yagi
(described at http://www.qsl.net/ve3cvg/antennas/900b/index.html)
down to say a 4 or 5 element version.

(ie. I would like the same physical construction method and frequency
but shorter boom length - around 350mm), around 7dBi gain would be fine

Thanks in advance

Regards

David

3048. antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:23:07 UTC
From: Lisa Simpson <none@none.com>
Message-ID: <fg3Tf.33148$UZ5.20113@tornado.ohiordc.rr.com>
Source record: 62809

Can anyone point me at a good book or website that can teach me about antenna theory from a beginner's standpoint? I'm getting into SWL & feel I really need to understand this subject well . . .

3049. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:38:34 UTC
From: jake <jake_not_the_fat_man@jake.net>
Message-ID: <441CC42A.B4B544F9@jake.net>
Source record: 62810

hi lisa,

check you local library, the arrl antenna books are very good,
also http://www.cebik.com

jake

Lisa Simpson wrote:

> Can anyone point me at a good book or website that can teach me about
> antenna theory from a beginner's standpoint? I'm getting into SWL & feel I
> really need to understand this subject well . . .

3050. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:45:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121phe846j8pdd1@corp.supernews.com>
Source record: 62811

The ARRL Antenna Book is very good, and it's a good deal more accurate
than many other beginners' books. There's very likely to be a copy at
your local library.

Roy Lewallen, W7EL

Lisa Simpson wrote:
> Can anyone point me at a good book or website that can teach me about
> antenna theory from a beginner's standpoint? I'm getting into SWL & feel I
> really need to understand this subject well . . .
>
>

3051. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 02:45:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <nB3Tf.57644$Jd.20021@newssvr25.news.prodigy.net>
Source record: 62812

w8ji@akorn.net wrote:
****
Please turn your technical expertise on this example which I
have asked you about many times with no response from you:

http://www.qsl.net/w5dxp/current.htm

At the bottom of the page, the coil is seen to have 0.17 amps
at the bottom and 2.0 amps at the top. With your lumped inductor
way of thinking, how is that possible?
****
> A bench test is fine. An inductor is an inductor.

But the chosen valid model varies depending upon which inductor
it is. Dr. Corum says the model must be changed over at 15 degrees
of the self-resonant frequency. These are velocity inhibited slow-
wave helical coils that we are talking about.

And standing wave current is certainly not traveling wave
current. Remember what Gene Fuller said? Please read it again.

> Gene said about standing wave current:
>> Phase is gone. Kaput. Vanished. Cannot be recovered.
>> Never to be seen again. The only "phase" remaining is the
>> cos (kz) term, which is really an amplitude description,
>> not a phase.

How can one use a signal where the phase is gone to measure phase?

> However, inductors were measured in an actual antenna. I measured
> current, and Roy Lewallen measured phase and current.

You and Roy measured standing wave current the phase of which is
unchanging over the coil and whip and entire antenna. You should
have realized over the past week that those measurements were
meaningless. EZNEC shows the same thing. Kraus reports the same
thing.

ONE CANNOT USE THE PHASE OF STANDING WAVE CURRENT TO MEASURE THE
PART OF AN ANTENNA THAT A LOADING COIL REPLACES.

> ... and that for a
> reasonable sized inductor the taper is very small.

The present argument is not about taper, it is about how much of
a wavelength a loading coil occupies. One cannot measure that value
using standing wave current as you and Roy did. Roy reported
accurate phase measurements but standing wave current phase is

meaningless since it has unchanging phase.
--
73, Cecil http://www.qsl.net/w5dxp

3052. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 03:10:51 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <%Y3Tf.584343$qk4.104946@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62813

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I could have sworn that you were insisting the phase still had meaning
>> in a standing wave environment.
>
>
> I know that's what you thought, but you were mistaken.
> By thinking that, you accidentally posted some support
> for my side of the argument. Thanks very much.

Cecil,

I am attaching a few of your quotes in this thread. Sorry to hear about your total loss of short term memory.

[Direct quotes from March 5-7]

Standing wave current is a net charge flow of zero. Standing wave current is DIFFERENT from traveling wave current. At any and every point, the standing wave current is NOT moving. Since it is not moving, there is NO net charge flow.

******

To tell the truth, standing waves are a product of the human mind. The forward and reflected waves couldn't care less about standing waves

Surely you understand that standing waves in a transmission line don't flow - they just stand there, which is why they are called "standing waves". Exactly the same principle applies to standing wave antennas.

The two traveling waves have to be analyzed separately and then superposed to obtain valid results. If you analyze net current without superposition, you are doing the same thing as superposing powers, which is a known no-no.

******

The currents that are doing the flowing are the underlying current components, the forward current and the reflected current and they are close to equal. Everything you say about a coil is true for the forward current and the reflected current. It is simply not true for the standing wave current which is just a conceptual construct and not a flowing phasor at all.

If you really want to accurately apply the principles you are asserting, you must treat the forward current and reflected current separately and

then superpose the results. Applying your above principle to standing
wave current is akin to superposing power and that's a no-no.

I have never seen such a wide-spread blind spot.

[end quotes]

73,
Gene
W4SZ

3053. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 03:18:51 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <v44Tf.584379$qk4.264400@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62814

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I ignored the harmonic examples. Who ever said that a coil would be a
>> lumped inductor when it is operated above its self resonant frequency?
>
>
> Oh, I forgot to ask you a technical question, Gene. Given that
> at 11.78 MHz, the current at the bottom of the coil is 0.17 amps
> and the current at the top is 2.0 amps, how do you explain those
> values if the current is flowing up through the coil? The details
> are at the bottom of the following web page.

Cecil,

Why is this an issue? Is there someone other than your strawman who has a problem with this concept? I don't recall anyone ever questioning such matters. Only in your imagination does anyone deny the existence of distributed, non-lumped components.

If there really is such a person, it might be better to address your query to him or to her.

73,
Gene
W4SZ

3054. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 03:22:43 UTC
From: Lisa Simpson <none@none.com>
Message-ID: <784Tf.33151$UZ5.20552@tornado.ohiordc.rr.com>
Source record: 62815

Thanx all - I'll check this book out!

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:121phe846j8pdd1@corp.supernews.com...
> The ARRL Antenna Book is very good, and it's a good deal more accurate
> than many other beginners' books. There's very likely to be a copy at
> your local library.
>
> Roy Lewallen, W7EL
>
> Lisa Simpson wrote:
> > Can anyone point me at a good book or website that can teach me about
> > antenna theory from a beginner's standpoint? I'm getting into SWL &
feel I
> > really need to understand this subject well . . .
> >
> >

3055. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 03:32:28 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <gh4Tf.57648$Jd.32908@newssvr25.news.prodigy.net>
Source record: 62816

Gene Fuller wrote:
> I am attaching a few of your quotes in this thread. Sorry to hear about
> your total loss of short term memory.

I'm in a learning process here and using the scientific method to
correct my mistakes. Isn't that what rational people do?

> [Direct quotes from March 5-7]
> Standing wave current is a net charge flow of zero.

I was corrected on that one and already admitted my mistake. The
charges obviously migrate from end to end in the antenna.

> Surely you understand that standing waves in a transmission line don't
> flow - they just stand there, which is why they are called "standing
> waves". Exactly the same principle applies to standing wave antennas.

This means the same thing as your posting that phase is gone.
A phasor requires a rotating phasor to exhibit flow in the
real sense of the word. Standing wave current doesn't possess
a rotating phasor so it is not flowing in the normal sense of
current flow.

If you think standing wave current is flowing, how do you explain
0.17 amps at the bottom of the coil and 2.0 amps at the top?

http://www.qsl.net/w5dxp/current.htm bottom of page

> The two traveling waves have to be analyzed separately and then
> superposed to obtain valid results.

Don't see anything wrong with that. If one uses the standing wave
current phase to try to measure phase shift through a coil, one is
making a mistake as has been demonstrated here.

> The currents that are doing the flowing are the underlying current
> components, the forward current and the reflected current and they are
> close to equal. Everything you say about a coil is true for the forward
> current and the reflected current. It is simply not true for the
> standing wave current which is just a conceptual construct and not a
> flowing phasor at all.

You said it yourself, Gene, phase has disappeared from standing wave
current. Do you understand the implications of your statements?
--
73, Cecil http://www.qsl.net/w5dxp

3056. Re: Coils are transmission lines

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 03:38:59 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <nn4Tf.57650$Jd.3202@newssvr25.news.prodigy.net>
Source record: 62817

Gene Fuller wrote:

> Cecil Moore wrote:
>> Oh, I forgot to ask you a technical question, Gene. Given that
>> at 11.78 MHz, the current at the bottom of the coil is 0.17 amps
>> and the current at the top is 2.0 amps, how do you explain those
>> values if the current is flowing up through the coil? The details
>> are at the bottom of the following web page.
>
> I don't recall anyone ever questioning such matters.

You seem to be trying to have it both ways. 0.17 amps
is not equal to 2.0 amps. 0 degrees is not equal to
180 degrees. How are those values possible in a lumped
inductor?
--
73, Cecil http://www.qsl.net/w5dxp

3057. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 04:00:39 UTC
From: pbourget <pbourget@gmail.com>
Message-ID: <1142740839.405629.200580@z34g2000cwc.googlegroups.com>
Source record: 62818

Basil Burgess wrote:
> Hello all
>
> I've made a first attempt at installing an antenna. It's a 2 Slinky dipole
> strung across my roof. I chose the Slinky dipole because it promised to give
> good (if not excellent) results in a relatively short antenna. I strung it
> between two 2' wood standards at the top of the roof. The roof is about
> 25-30' from the ground. I used the twin feedline, which is about 18', and
> the insulators from a GSRV Mini antenna I bought. The twinline is connected
> with a balun to a 50' RG-8X cable that runs across the roof and down to my
> window. I've temporarily led it in through the window. The excess cable,
> probably about 20 feet or so, is loosely coiled between the inner and outer
> window.
>
> The reception is great. I was picking up DX from Europe. However, I got no
> answers to any attempt to call out. I wasn't expecting DX for my very first
> QSO, but I was hoping for someone.
>
> I think it may be because the feedline runs along the roof rather than
> hanging in free space. Could this be the case? The SWR was terrible; it took
> my automatic tuner a lot of work to get a match, but I was getting 1.5 or
> less on 80 and 40.
>
> Thank you for any advice you can offer.
>
> 73
> Basil Burgess, VE3JEB
>
> My email is basilb which is through hotmail

3058. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 04:11:37 UTC
From: pbourget <pbourget@gmail.com>
Message-ID: <1142741497.477575.13150@u72g2000cwu.googlegroups.com>
Source record: 62819

Basil Burgess wrote:
> Hello all
>
> I've made a first attempt at installing an antenna. It's a 2 Slinky dipole
> strung across my roof. I chose the Slinky dipole because it promised to give
> good (if not excellent) results in a relatively short antenna. I strung it
> between two 2' wood standards at the top of the roof. The roof is about
> 25-30' from the ground. I used the twin feedline, which is about 18', and
> the insulators from a GSRV Mini antenna I bought. The twinline is connected
> with a balun to a 50' RG-8X cable that runs across the roof and down to my
> window. I've temporarily led it in through the window. The excess cable,
> probably about 20 feet or so, is loosely coiled between the inner and outer
> window.
>
> The reception is great. I was picking up DX from Europe. However, I got no
> answers to any attempt to call out. I wasn't expecting DX for my very first
> QSO, but I was hoping for someone.
>
> I think it may be because the feedline runs along the roof rather than
> hanging in free space. Could this be the case? The SWR was terrible; it took
> my automatic tuner a lot of work to get a match, but I was getting 1.5 or
> less on 80 and 40.
>
> Thank you for any advice you can offer.
>
> 73
> Basil Burgess, VE3JEB
>
> My email is basilb which is through hotmail

There is more to contacting DX then trying different antennas. You say
you are picking up DX from Europe so you obviously have a setup that
receives reasonably. How efficient it is transmitting is a different
issue. Can you make local contacts in Canada and the USA?

I was just trying to contact CN2R in Morrocco on 80 meters. I could
hear him fine but he doesn't seem to hear me. Well I am running 100
watts with a trap dipole. He probably can't hear me. He is also
probably running a kilowatt and I know he has great antennas. Much of
the DX you will hear may be running 10 times the power you are and that
is why you hear them and they don't hear you. Don't worry about the
antenna too much until you make local contacts and work your way out to
greater distances.
Also, you may have to call for a long time to get through the pileup
calling the DX (which you may not hear). Try calling CQ DX yourself and

see if anyone comes back.

Pete W6OP

3059. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 04:14:56 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121pmm3758jm4f4@corp.supernews.com>
Source record: 62820

Gene Fuller wrote:
> Cecil Moore wrote:
> . . .
> The two traveling waves have to be analyzed separately and then
> superposed to obtain valid results. If you analyze net current without
> superposition, you are doing the same thing as superposing powers, which
> is a known no-no.

Both those sentences are false.

In a linear system like an antenna or transmission line, superposition applies. This means, among other things, that we can separately analyze the system's response to various components, and the sum of the results we get are the response to the sum of the excitation components. For example, we can split a current into two -- or more -- components, such as a forward traveling current wave and a reverse traveling current wave, with the actual current (or what Cecil calls "net" or "standing wave" current) at any point being the sum of the two. We can find the voltage across an inductor, for example, which results from the forward traveling current. Then we find the voltage across the inductor resulting from the reverse traveling current. Superposition tells us that the sum of those two voltages is what results from a current which is equal to the sum of the forward and reverse traveling current waves.

We must get exactly the same result, in this example the voltage across the inductor, if we find it by adding the separate voltages due individually to the two current components, or if we find it directly as a result of the total current. We don't have to separate the current into two components then superpose the results as Cecil claims -- we get exactly the same result either way because superposition holds. This has nothing to do with attempted superposition of powers or other properties which don't fit into the boundaries of linear quantities.

We're not restricted to splitting the current into a single forward and reverse wave, either. We can split it into many separate traveling waves, as well as any number of other combinations. As long as all the components add up to the actual total current, we'll get exactly the same result when we separately sum the responses to each individual component that we do when we simply look at the response to the total current.

If Cecil's analysis shows, or his theory requires, that the result be different when adding the responses to traveling current waves than it is by calculating the response directly from the total current, then the analysis or theory is wrong. Superposition requires that the two results be identical.

Roy Lewallen, W7EL

3060. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 04:57:54 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <mx5Tf.61469$dW3.52700@newssvr21.news.prodigy.com>
Source record: 62821

Roy Lewallen wrote:
> If Cecil's analysis shows, or his theory requires, that the result be
> different when adding the responses to traveling current waves than it
> is by calculating the response directly from the total current, then the
> analysis or theory is wrong. Superposition requires that the two results
> be identical.

There is a phase shift through the coil for the individual
phasors. When the phasors are superposed, that phase shift
information disappears. That's what I meant by my statement.
The results are the same but information is lost.

Please see http://www.qsl.net/w5dxp/current.htm "Why the net
current is not constant through a loading coil" and take a look
at the phase of the net current. It is unchanging. Those phasors
are copied directly from "Optics" by Hecht.

What I was talking specifically about is the phase shift through
the coil so let's discuss that one limited technical subject.

The form of the forward traveling wave current is function(kz+wt)
The form of the reflected traveling wave current is function(kz-wt)
When we superpose those two waves we get the standing wave current.
The form of the standing wave current is function(kz)*function(wt)
A lot of information, including all phase information, has been lost
in that superposition process.

The standing wave current is obviously not like the traveling wave
currents because the equations are different. As Gene Fuller said
earlier, it has been stripped of all phase information by the
superposition process. You pointed out a couple of days ago that the
phase of the standing wave current is virtually constant from feedpoint
to the tip of the antenna while the phase of the traveling waves are
certainly not constant.

I have asked this technical question before and no one has answered
it. Given that the standing wave current would indicate a phase
shift of zero in 45 degrees of a wire antenna, what does that imply
for using the standing wave current to measure the number of degrees
of the antenna occupied by the loading coil?

If the standing wave current cannot determine the phase shift in
a wire, why does anyone think it can determine the phase shift
in a wire formed into a coil?

Kraus and EZNEC tell us that the standing wave phase shift is zero
from tip to tip in a 1/2WL thin-wire dipole. Why is it a surprise

that if we replace part of that antenna with a loading coil the standing wave phase shift doesn't change and is still zero? What useful information does knowing that provide?

Since the standing wave current phase is unchanging, how can it be used to determine how much of an antenna has been replaced by a loading coil?

You and Tom have used standing wave current for your measurements. Delays and phases cannot be measured using standing wave current because standing wave current doesn't contain any phase related information. As Gene said, it lost all phase information in the superposition. All we can gather from the standing wave current is that the forward current and reflected current phasors are rotating in opposite directions. The delay experienced by the traveling waves is hidden by the superposition process.
--
73, Cecil http://www.qsl.net/w5dxp

3061. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 06:01:29 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <8kqp12h5hs3bmrn2vn34i96m5fr0osv90s@4ax.com>
Source record: 62822

On Sun, 19 Mar 2006 04:57:54 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Please see http://www.qsl.net/w5dxp/current.htm

I refer to the diagram in the section entitled "What EZNEC Says About
Current Distribution Using Inductive Loading Stubs"

You use the diagram to assert that there is "not a lot of difference
between inductive loading stubs and loading coils" by comparing the
current distribution with another case.

You show graphically the current on each side of the stub. You do not
show the current in each wire of the stub or the sum of the currents
in the stub.

EZNEC calculates the currents in each wire of the stub? Aren't those
currents a relevant detail that you have omitted from the diagram.

Owen
--

3062. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 08:10:16 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121q4fbgb89gb1a@corp.supernews.com>
Source record: 62823

Owen Duffy wrote:
> On Sun, 19 Mar 2006 04:57:54 GMT, Cecil Moore <mycall@hotmail.com>
> wrote:
>
>> Please see http://www.qsl.net/w5dxp/current.htm
>
> I refer to the diagram in the section entitled "What EZNEC Says About
> Current Distribution Using Inductive Loading Stubs"
>
> You use the diagram to assert that there is "not a lot of difference
> between inductive loading stubs and loading coils" by comparing the
> current distribution with another case.
>
> You show graphically the current on each side of the stub. You do not
> show the current in each wire of the stub or the sum of the currents
> in the stub.
>
> EZNEC calculates the currents in each wire of the stub? Aren't those
> currents a relevant detail that you have omitted from the diagram.

I don't quite follow the theory on the web page, but what does it predict should happen if there were no antenna at all, and the inductor were connected to a simple series RC circuit instead of the whip?

I've taken the EZNEC model available there and modified it by replacing the whip with a wire to ground from the top of the coil (http://eznec.com/misc/test316_modified.EZ). I added a lumped impedance in that wire to represent the impedance of the vertical wire I deleted(*). The feedpoint impedance is the same as for the original model, and the currents at the top and bottom of the inductor are almost exactly the same as for the original model. Can the traveling wave analysis be used to explain the inductor currents in this model? Is traveling wave analysis necessary to explain them?

(*) The impedance inserted in the new wire isn't equal to the impedance of the top wire driven against ground. The reason is that the new wire to ground does radiate some, does have significant impedance itself, and does interact with the inductor. The modified system, however, is quite obviously very different in radiating properties from the original, and isn't too different from a lumped RC load.

Roy Lewallen, W7EL

3063. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 10:41:48 UTC
From: w8ji@akorn.net
Message-ID: <1142764908.270955.105010@i40g2000cwc.googlegroups.com>
Source record: 62824

Cecil Moore wrote:
> Please turn your technical expertise on this example which I
> have asked you about many times with no response from you:
>
> http://www.qsl.net/w5dxp/current.htm
>
> At the bottom of the page, the coil is seen to have 0.17 amps
> at the bottom and 2.0 amps at the top. With your lumped inductor
> way of thinking, how is that possible?

Yes it is possible. There is no difference between doing things as
lumped components or standing wave models.

The only disagreement is you seem to claim some very odd things about
current not flowing, unless in the course of 400 posts you have
corrected that.

This entire thread reminds me of the Fractenna threads of years ago.

73 Tom

3064. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 11:41:22 UTC
From: w8ji@akorn.net
Message-ID: <1142768482.771842.96110@u72g2000cwu.googlegroups.com>
Source record: 62825

Owen Duffy wrote:
> On Sat, 18 Mar 2006 10:21:27 -0500, "Basil Burgess"
> >I've made a first attempt at installing an antenna. It's a 2 Slinky dipole
> >strung across my roof. I chose the Slinky dipole because it promised to give
> >good (if not excellent) results in a relatively short antenna. I strung it
>
> There is nothing in your post to indicate how long or short your
> antenna is. Perhaps it is a well known design and I just haven't heard
> of it in my limited experience.

Owen and Basil,

The slinky dipole comes from the misplaced notion that packing a few hundred feet of wire in a ten or twenty foot area makes an antenna a few hundred feet long.

They totally miss the point of why an antenna radiates and how the steel spiral affects the efficiency. There isn't any attempt to make the antenna resoant either!

Overall it is a terrible system, unless you just happen through luck to use it where the antenna has a low-order resonance and current maximum at the feedpoint.

You could probably trim the slinky and make it work on a few bands where it would be OK.

If you have enough room, just put up a dipole. Watch out for these gimmick antennas. There isn't any magic bullet with antennas.

73 Tom

3065. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 11:46:18 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121qh4dm7om8j13@corp.supernews.com>
Source record: 62726

Roy Lewallen wrote:
> . . .
> I've taken the EZNEC model available there and modified it by replacing
> the whip with a wire to ground from the top of the coil
> (http://eznec.com/misc/test316_modified.EZ). I added a lumped impedance
> in that wire to represent the impedance of the vertical wire I
> deleted(*). The feedpoint impedance is the same as for the original
> model, and the currents at the top and bottom of the inductor are almost
> exactly the same as for the original model. Can the traveling wave
> analysis be used to explain the inductor currents in this model? Is
> traveling wave analysis necessary to explain them?
>
> (*) The impedance inserted in the new wire isn't equal to the impedance
> of the top wire driven against ground. The reason is that the new wire
> to ground does radiate some, does have significant impedance itself, and
> does interact with the inductor. The modified system, however, is quite
> obviously very different in radiating properties from the original, and
> isn't too different from a lumped RC load.

Notice that the current into the grounded wire at the bottom of the coil is about 1 amp, and the current going into ground at the grounded end of the added wire is about 0.56 amp. So where is the extra current for the coil bottom wire coming from? The answer is displacement current from the coil. That is, the coil is capacitively coupled to ground, and this causes displacement current from the coil to ground. The effect is greatest at the end of the coil which is farthest from the source. A decent model of the coil is an L network, with a series L, and a shunt C to ground from the far end. This is all that's necessary to explain the drop in current from the bottom to the top; no current waves, standing or traveling, no transmission line analysis are required.

If you're not convinced, try this. Change the ground type to free space. Then connect the bottoms of the two formerly grounded wires together with another wire. You'll see that the current at the top of the coil is now very nearly the same as at the bottom. We haven't changed any waves, antenna lengths, or anything else related to antennas or waves. All we've done is to eliminate the other side of the capacitor -- we've removed the C in the equivalent lumped L network.

A simple lumped component model explains the difference between grounded and free space models just fine. How well does the traveling wave theory do at it?

Roy Lewallen, W7EL

3066. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 11:48:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121qh7p34ed2a7d@corp.supernews.com>
Source record: 62727

w8ji@akorn.net wrote:
> . . .
> This entire thread reminds me of the Fractenna threads of years ago.

Don't be so harsh, Tom. Cecil hasn't threatened to sue anybody or called anyone a pirate. But I have to say that the logic does have a familiar ring.

Roy Lewallen, W7EL

3067. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 12:41:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <bkcTf.2044$4L1.1849@newssvr11.news.prodigy.com>
Source record: 62728

Owen Duffy wrote:

> Cecil Moore <mycall@hotmail.com> wrote:
>>Please see http://www.qsl.net/w5dxp/current.htm
>
> I refer to the diagram in the section entitled "What EZNEC Says About
> Current Distribution Using Inductive Loading Stubs"
>
> You use the diagram to assert that there is "not a lot of difference
> between inductive loading stubs and loading coils" by comparing the
> current distribution with another case.
>
> You show graphically the current on each side of the stub. You do not
> show the current in each wire of the stub or the sum of the currents
> in the stub.

The currents in stubs cannot be displayed very well at full size in
EZNEC just as the currents in coils cannot be displayed very well.
Maybe an enlarged view would show it. I will try to do that.

> EZNEC calculates the currents in each wire of the stub? Aren't those
> currents a relevant detail that you have omitted from the diagram.

Remember the present discussion is about the ability to use standing
wave current phase to measure the electrical length of a wire or a
coil. I have run the currents that you mention. The phase of the current
is almost constant through the stubs. The phase of the current is
almost constant through the coils. Would you like to see a list
of the current at points through the stub Vs the current at points
through the coil?
--
73, Cecil http://www.qsl.net/w5dxp

3068. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 13:02:14 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <qDcTf.2048$4L1.1973@newssvr11.news.prodigy.com>
Source record: 62729

Roy Lewallen wrote:
> Can the traveling wave
> analysis be used to explain the inductor currents in this model?

In this new configuration, the traveling wave current
encounters a short-circuit to ground instead of the
open-circuit in a normal antenna. And that forward current
is reflected by that short circuit. In the shorted case
its phase doesn't change so the forward and reflected
currents add instead of subtrace. But their phasors are
still rotating in opposite directions. Please note that
the phase shift in the standing wave current is almost
zero throughout the system, i.e. standing wave phase
information has still been lost. We still don't know
the electrical length of the coil for the same reasons
we didn't know it before. Below 'func' stands for
'function of'.

The standing wave current reported by EZNEC is of the
form: func(kz)*func(wt) = fun(kz+wt) + func(kz-wt)

Is there any way in EZNEC to subtract out the func(kz-wt)
reflected term and leave just the forward term?
--
73, Cecil http://www.qsl.net/w5dxp

3069. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 13:04:45 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <NFcTf.2049$4L1.378@newssvr11.news.prodigy.com>
Source record: 62730

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>At the bottom of the page, the coil is seen to have 0.17 amps
>>at the bottom and 2.0 amps at the top. With your lumped inductor
>>way of thinking, how is that possible?
>
> Yes it is possible. There is no difference between doing things as
> lumped components or standing wave models.

Please explain how 0.17 amps can be on the source side of a
lumped inductor while 2.0 amps exists at the top of the
inductor.
--
73, Cecil http://www.qsl.net/w5dxp

3070. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 13:16:41 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ZQcTf.2050$4L1.543@newssvr11.news.prodigy.com>
Source record: 62731

Roy Lewallen wrote:
> In a linear system like an antenna or transmission line, superposition
> applies. ... We must get exactly the same result, ...
> If Cecil's analysis shows, or his theory requires, that the result be
> different when adding the responses to traveling current waves than it
> is by calculating the response directly from the total current, then the
> analysis or theory is wrong. Superposition requires that the two results
> be identical.

Superposition does not require that all information be preserved
through the superposition process. Here's an example:

Two people are across the room from each other with a coax cable running
between them. They each have two identical PSK modems but only one coax.
When they use one modem pair, any information one sends is received 100%
by the other. When they use the other modem pair, any information one
sends is received 100% by the other. When they superpose the signals
over the single coax line, all phase information is lost. The superposition
results are the same but all phase information is lost in the process.
The rules of superposition do not apply to the phase information content.
The phase information is lost in the process of superposition.

In like manner, the rules of superposition do not apply to the ability
of a standing wave to detect phase shift. The phase information is
lost in the process of superposition. One cannot use standing wave
current phase to measure the electrical length of a wire or a coil.

A 75m wire dipole is known to be close to 90 degrees long from the
feedpoint to the tip. EZNEC says the current changes phase by 2.5
degrees. How can current change phase by only 2.5 degrees in an
antenna wire known to be 90 degrees long?

Since EZNEC's standing wave current cannot detect a phase shift in
90 degrees of wire, why should it detect a phase shift in a coil?
If standing wave current measurements cannot detect a phase shift
in 90 degrees of wire, why should anyone's measurements detect a
phase shift in a coil?
--
73, Cecil http://www.qsl.net/w5dxp

3071. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 14:11:10 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <thpq12981m5lg8bv1ea9vgbb1dpvb1juls@4ax.com>
Source record: 62732

The ARRL Radio Amateur's Handbook (ANY year) is a little less
intimidating than the Antenna Handbook. The Antenna Handbook is enough
for most of us for many years.

On Sun, 19 Mar 2006 02:23:07 GMT, "Lisa Simpson" <none@none.com>
wrote:

>Can anyone point me at a good book or website that can teach me about
>antenna theory from a beginner's standpoint? I'm getting into SWL & feel I
>really need to understand this subject well . . .
>
John Ferrell W8CCW

3072. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 15:22:38 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <6GeTf.12761$Uc2.5167@fed1read04>
Source record: 62733

Lisa:
Check out the SWL oriented antenna links at URL:
http://ac6v.com/swl.htm#ANT

--
CL -- I doubt, therefore I might be !

"Lisa Simpson" <none@none.com> wrote in message
news:fg3Tf.33148$UZ5.20113@tornado.ohiordc.rr.com...
> Can anyone point me at a good book or website that can teach me about
> antenna theory from a beginner's standpoint? I'm getting into SWL & feel
> I
> really need to understand this subject well . . .
>
>

3073. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 15:41:55 UTC
From: gb <onw9mapsgb@no.arrl.spam.net>
Message-ID: <7qednZwzx5xX5oDZnZ2dnUVZ_sOdnZ2d@comcast.com>
Source record: 62734

"Richard Miller" <wizzard6@optusnet.com.au> wrote in message
news:441c880a$0$7604$afc38c87@news.optusnet.com.au...
> Hi
>
> I was just digging around the garage and I found my old multi band trap
> vertical antenna LOL.. Anyway it covered 80m to 10m and I got it from Dick
> Smith back in the 80's that's a long time ago.. Dos anyone have a diagram
> for one of them I can not find mine but still looking for it.. Can any one
> help..
>
> 73's Regards,
> Richard Miller

A good photos would help .. likely one of 4 or 5 popular models.

gb

3074. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 16:07:02 UTC
From: Basil Burgess <basilb.remove@hotmail.remove.com>
Message-ID: <dvjvjd$h83$1@emma.aioe.org>
Source record: 62735

Hello

I'm sorry, though I tried to word that idea carefully, I left room for confusion. I wasn't trying to work DX, I only meant that the antenna received a clear signal from distant stations. I know that this is entirely due to the sensitivity and selectivity of my receiver, and does not reflect the ability to transmit to that distance. I had no expectation of getting out to the rest of the world. I'd have been happy to talk to someone 3 miles from me, for a first QSO.

Thank you for your ideas, though.

73
Basil VE3JEB
"pbourget" <pbourget@gmail.com> wrote in message
news:1142741497.477575.13150@u72g2000cwu.googlegroups.com...
>
> There is more to contacting DX then trying different antennas. You say
> you are picking up DX from Europe so you obviously have a setup that
> receives reasonably. How efficient it is transmitting is a different
> issue. Can you make local contacts in Canada and the USA?
>
> I was just trying to contact CN2R in Morrocco on 80 meters. I could
> hear him fine but he doesn't seem to hear me. Well I am running 100
> watts with a trap dipole. He probably can't hear me. He is also
> probably running a kilowatt and I know he has great antennas. Much of
> the DX you will hear may be running 10 times the power you are and that
> is why you hear them and they don't hear you. Don't worry about the
> antenna too much until you make local contacts and work your way out to
> greater distances.
> Also, you may have to call for a long time to get through the pileup
> calling the DX (which you may not hear). Try calling CQ DX yourself and
> see if anyone comes back.
>
> Pete W6OP
>

3075. Pirate radio's hip-hop tunes finding way to pilots' ears

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 16:11:45 UTC
From: stananger <stananger@********.***>
Message-ID: <5pfTf.5294$TK2.2544@trnddc07>
Source record: 62736

Pirate radio's hip-hop tunes finding way to pilots' ears

These days, pilots at Miami International Airport are hearing something unexpected in their headphones: hip-hop from a pirate radio station.
BY DAVID OVALLE
dovalle@MiamiHerald.com

It began with airline pilots reporting hip-hop songs playing on two frequencies from a station calling itself Da Streetz.

Authorities pinpointed the source of the transmission: a stucco-and-brick, two-story warehouse in Opa-locka. Joseph Zeller, a state agent, discovered a large radio antenna mounted on a tower next to the building.

Armed with a search warrant, he confiscated three computers, a monitor, a mixing board, a stereo compressor, a microphone, a two-deck CD player, a telephone, a DSL modem, two stereo speakers, three gray three-ring binders and 10 cases filled with CDs.

But no radio transmitter. And no disc jockey.

''No arrests. This is still an open case,'' said Paige Patterson-Hughes, a Florida Department of Law Enforcement spokeswoman.

Meanwhile, Da Streetz remains on the air.

The music from the pirate radio station has been so troublesome over the last month that a federal engineer who specializes in frequency transmissions has arrived in Miami to help investigators locate the signal.

''It's intermittent. Not all day, every day,'' said Kathleen Bergen, a spokeswoman for the Federal Aviation Administration. ``But clear communication between air control and the pilots is a critical part of flying.''

Helping in the investigation: the Federal Communications Commission and the Florida Department of Law Enforcement.

It is believed to be the first such case worked by state agents in South Florida since a new law gave law enforcement broader authority to go after illegal radio stations.

It's unclear if agents have a suspect or how long the station has operated from the building. The owner of the warehouse had no idea the building was being used as an illegal station, authorities said.

With its flat terrain, South Florida has long been described as the pirate radio capital of the United States.

On any given day, between nine and 20 illegal stations are playing in South Florida, according to the Florida Association of Broadcasters. Some air around the clock; many switch frequencies and locations often.

''They get a kick out of it. They laugh at everybody,'' said C. Patrick Roberts, the organization's president.

With readily available technology and radio mega-companies that critics say have limited playlists, unlicensed radio stations have proliferated in recent years.

Supporters contend the stations provide niche programming -- often geared toward ethnic groups -- not found on overcommercialized radio stations.

The FAA says it has launched 30 similar investigations into pirate stations interfering with airport transmissions during the past decade. They now have more help from the state.

A Florida anti-piracy law went into effect last summer, making interfering with signals from licensed public or commercial stations, or broadcasting without a license, a third-degree felony.

That gave FDLE the power to aggressively go after pirate radio stations. Since then, agents have shut down about five illegal radio stations.

So far, they have arrested at least two men in South Florida.

Last year, agents shut down Vibez, a popular Caribbean station that had operated quite openly.

3076. Re: Pirate radio's hip-hop tunes finding way to pilots' ears

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 17:48:30 UTC
From: Lisa Simpson <none@none.com>
Message-ID: <OPgTf.27799$g91.16390@tornado.ohiordc.rr.com>
Source record: 62737

--

==========
Earl W. Phillips, Jr.
PHILLIPS DESIGN
http://www.pdesign.net
earl@pdesign.net
614.764.0476 - V

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My calendar: http://calendar.yahoo.com/public/earlwphillipsjr

"stananger" < stananger@********.***> wrote in message
news:5pfTf.5294$TK2.2544@trnddc07...
> Pirate radio's hip-hop tunes finding way to pilots' ears
>
> These days, pilots at Miami International Airport are hearing something
> unexpected in their headphones: hip-hop from a pirate radio station.
> BY DAVID OVALLE
> dovalle@MiamiHerald.com
>
> It began with airline pilots reporting hip-hop songs playing on two
> frequencies from a station calling itself Da Streetz.
>
> Authorities pinpointed the source of the transmission: a stucco-and-brick,
> two-story warehouse in Opa-locka. Joseph Zeller, a state agent, discovered
> a large radio antenna mounted on a tower next to the building.
>
> Armed with a search warrant, he confiscated three computers, a monitor, a
> mixing board, a stereo compressor, a microphone, a two-deck CD player, a
> telephone, a DSL modem, two stereo speakers, three gray three-ring binders
> and 10 cases filled with CDs.
>
> But no radio transmitter. And no disc jockey.
>
> ''No arrests. This is still an open case,'' said Paige Patterson-Hughes, a
> Florida Department of Law Enforcement spokeswoman.
>
> Meanwhile, Da Streetz remains on the air.
>
> The music from the pirate radio station has been so troublesome over the
> last month that a federal engineer who specializes in frequency
> transmissions has arrived in Miami to help investigators locate the

signal.
>
> ''It's intermittent. Not all day, every day,'' said Kathleen Bergen, a
> spokeswoman for the Federal Aviation Administration. ``But clear
> communication between air control and the pilots is a critical part of
> flying.''
>
> Helping in the investigation: the Federal Communications Commission and
the
> Florida Department of Law Enforcement.
>
> It is believed to be the first such case worked by state agents in South
> Florida since a new law gave law enforcement broader authority to go after
> illegal radio stations.
>
> It's unclear if agents have a suspect or how long the station has operated
> from the building. The owner of the warehouse had no idea the building was
> being used as an illegal station, authorities said.
>
> With its flat terrain, South Florida has long been described as the pirate
> radio capital of the United States.
>
> On any given day, between nine and 20 illegal stations are playing in
South
> Florida, according to the Florida Association of Broadcasters. Some air
> around the clock; many switch frequencies and locations often.
>
> ''They get a kick out of it. They laugh at everybody,'' said C. Patrick
> Roberts, the organization's president.
>
> With readily available technology and radio mega-companies that critics
say
> have limited playlists, unlicensed radio stations have proliferated in
> recent years.
>
> Supporters contend the stations provide niche programming -- often geared
> toward ethnic groups -- not found on overcommercialized radio stations.
>
> The FAA says it has launched 30 similar investigations into pirate
stations
> interfering with airport transmissions during the past decade. They now
> have more help from the state.
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> A Florida anti-piracy law went into effect last summer, making interfering
> with signals from licensed public or commercial stations, or broadcasting
> without a license, a third-degree felony.
>
> That gave FDLE the power to aggressively go after pirate radio stations.
> Since then, agents have shut down about five illegal radio stations.
>

> So far, they have arrested at least two men in South Florida.
>
> Last year, agents shut down Vibez, a popular Caribbean station that had
> operated quite openly.
>

3077. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 18:11:52 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <441d9ee8_5@newsfeed.slurp.net>
Source record: 62738

ORIGINAL MESSAGE:

Lisa Simpson wrote:

> Can anyone point me at a good book or website that can teach me about
> antenna theory from a beginner's standpoint? I'm getting into SWL &
> feel I really need to understand this subject well . . .

********** REPLY SEPARATOR **********

The ARRL Antenna Handbook starts at the very beginning and goes as far as you would like for ham radio designs. If you become so enthralled with antennas that you want to go into it professionally, there are other books but for us hams. that one will do.

Bill, W6WRT

3078. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 19:07:18 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <nqar121t5o05h157kbsr4meeheebbq1shh@4ax.com>
Source record: 62739

On Sun, 19 Mar 2006 02:23:07 GMT, "Lisa Simpson" <none@none.com>
wrote:

>Can anyone point me at a good book or website that can teach me about
>antenna theory from a beginner's standpoint? I'm getting into SWL & feel I
>really need to understand this subject well . . .
>

Better Shortwave Reception, by William Orr, out of print, but a used
copy is at:

http://www.alibris.com/search/search.cfm?S=R&wauth=William+I.+Orr&siteID=WfbLd2hpy3I-B7MHZ
RtvMDVKJzo0z0Tvng

Mr. Orr was one of the more understandable writers on things
electronic...

bob
k5qwg

3079. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 19:40:47 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <3tiTf.45184$2O6.38537@newssvr12.news.prodigy.com>
Source record: 62740

Roy Lewallen wrote:
> -- we get
> exactly the same result either way because superposition holds.

Thinking that the result is the same and that nothing gets
lost during superpositon is a misconception. Consider the
following.

PSK modem A--------------------------------------PSK modem B

When a single signal flows from A to B, perfect information
transfer occurs. When a single signal flows from B to A,
perfect information transfer occurs. Now superpose the
two information streams. ZERO information transfer occurs.
Superposition is not magic and the result is not the same.

The superposition of forward and reflected currents cause
100% loss of phase information in the standing wave current
phase measurement. It is analogous to the problem above.

A standing wave current cannot be used to determine the
delay through a coil.
--
73, Cecil http://www.qsl.net/w5dxp

3080. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 19:53:38 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <micr12tdh1mq7dhnofnpkm1n5ugftfe3gd@4ax.com>
Source record: 62741

On Sun, 19 Mar 2006 12:41:43 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Owen Duffy wrote:
>
>> Cecil Moore <mycall@hotmail.com> wrote:
>>>Please see http://www.qsl.net/w5dxp/current.htm
>>
>> I refer to the diagram in the section entitled "What EZNEC Says About
>> Current Distribution Using Inductive Loading Stubs"
>>
>> You use the diagram to assert that there is "not a lot of difference
>> between inductive loading stubs and loading coils" by comparing the
>> current distribution with another case.
>>
>> You show graphically the current on each side of the stub. You do not
>> show the current in each wire of the stub or the sum of the currents
>> in the stub.
>
>The currents in stubs cannot be displayed very well at full size in
>EZNEC just as the currents in coils cannot be displayed very well.
>Maybe an enlarged view would show it. I will try to do that.

Or even words that explain that the diagram is incomplete, that there
are currents flowing in the stub wires, and that they don't balance
each other so they participate in the antenna's total current moment.

The currents in the stubs is an explanation for the difference in the
currents in the main radiator at each side of the stub connection.

Is it fair to say that though the diagram may resemble the first
diagram on the page, to some extent, the reason they are similar is
that the second one is incomplete.

>
>> EZNEC calculates the currents in each wire of the stub? Aren't those
>> currents a relevant detail that you have omitted from the diagram.
>
>Remember the present discussion is about the ability to use standing
>wave current phase to measure the electrical length of a wire or a
>coil. I have run the currents that you mention. The phase of the current
>is almost constant through the stubs. The phase of the current is
>almost constant through the coils. Would you like to see a list
>of the current at points through the stub Vs the current at points
>through the coil?

No thanks, I didn't ask the question without creating a model and inspecting the currents.

The phase of the currents is only one dimension. Though the phase of the current in adjacent segments in all wires (including the stubs) is commonly similar (except where a phase reversal occurs), in general, the magnitude and phase of paired stub segments that effectively form a transmission line section are not equal in magnitude and phase.

My point is really about whether the subject diagram supports your argument, especially if it is incomplete and if it misrepresents the scenario.

Owen
--

3081. vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 20:07:05 UTC
From: ml <m@di.net>
Message-ID: <m-35E3F6.15070419032006@news.verizon.net>
Source record: 62742

hi

i am pondering this again after thinking the odds of being about to put a beam up are slim

currently i have a nice dipole CF horiz via a topside sgc , i am happy w/it

i think i might be able to get a verticle (all bander) up there but then i wonder

overall if it would really pay from just a performance point of view

the reviews i see i personally average as some signals would prob come in bettter on one and some signals the other 'depending'

but i guess i can't quantify if at the end of the day i'd say wow really glad i had that vert or if perhaps having a 2nd antenna would really net me only a marginal end of year bunch of extra qso's

perhaps a unrelated question #2

given the building master tv antenna is close by, would one guess that a verticle or a small triband beam would give off more tvi??

assume both would be slightly higher than the tv ant but close proximity

thanks

3082. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 20:39:23 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <ikjTf.55$wg6.47@fe10.lga>
Source record: 62743

<w8ji@akorn.net> wrote

> This long painful thread (it's been going on years now) started because
> K3BU claimed a loading inductor had most of the current in the first
> few turns.

I am back after loooong absence here and see more misinformation coming from Tom, W8JI.

I claimed that current in the antenna coil is NOT CONSTANT (or near) as he claimed.
The case was of electrical quarter wave vertical radiator (as loaded mobile antenna) and that the current is distributed, varying across the coil as I have experienced, W9UCW has measured and Cecil has explained.
The refresher is at
http://www.k3bu.us/loadingcoils.htm

The thread is "painful" because some people try to subvert the reality and keep clinging to wrong "reality" and some try to set the record straight..
This misinformation keeps being perpetuated in literature and it even crept into the latest ON4UN 4th edition of Low Band DXing (see page 9-33).

The significance of properly realizing the current distribution in the loading coil is in how the modeling programs treat the phenomena and major screw-up will show up in multi element loaded antenna systems, where error will multiply and give false results.
There are few more statements slightly out of true on W8JI pages, but would have to be left for later time.

I apologize for being away from this NG, my AOL provider dumped NG and I am slowly dumping AOL and will migrate to optonline.net and back to NG. Also business and other QRM keeps me away, but I hope is that "tings" will improve.

73 to all
Yuri, K3BU
www.K3BU.us
www.TeslaRadio.org

3083. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 21:29:05 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <441dcd21_4@newsfeed.slurp.net>
Source record: 62744

ORIGINAL MESSAGE:

ml wrote:

> the reviews i see i personally average as some signals would prob
> come in bettter on one and some signals the other 'depending'
>
> but i guess i can't quantify if at the end of the day i'd say wow
> really glad i had that vert or if perhaps having a 2nd antenna
> would really net me only a marginal end of year bunch of extra qso's

********** REPLY SEPARATOR **********

For a couple of years I had a 40 meter half-wave dipole and a 40 meter ground plane with elevated radials. Both were at about the same height and had full size elements (no loading coils). I'd say about 95% of the time the performance was nearly identical between the two, but there were times when one would outperform the other, but not by much.

If you are in an environment with high man made noise, you will find the horizontal dipole is quieter, but otherwise I would just put up which ever is easier mechanically, or ideally, put up both.

Bill, W6WRT

3084. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 21:44:37 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <9hkTf.48560$F_3.36297@newssvr29.news.prodigy.net>
Source record: 62745

Cecil Moore wrote:
> Roy Lewallen wrote:
>
>> -- we get exactly the same result either way because superposition
>> holds.
>
>
> Thinking that the result is the same and that nothing gets
> lost during superpositon is a misconception. Consider the
> following.
>
> PSK modem A--------------------------------------PSK modem B
>
> When a single signal flows from A to B, perfect information
> transfer occurs. When a single signal flows from B to A,
> perfect information transfer occurs. Now superpose the
> two information streams. ZERO information transfer occurs.
> Superposition is not magic and the result is not the same.
>
> The superposition of forward and reflected currents cause
> 100% loss of phase information in the standing wave current
> phase measurement. It is analogous to the problem above.
>
> A standing wave current cannot be used to determine the
> delay through a coil.

Cecil, that's the worst analogy I've ever read in my
life.
73,
Tom Donaly, KA6RUH

3085. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 21:47:40 UTC
From: w8ji@akorn.net
Message-ID: <1142804860.185346.321020@t31g2000cwb.googlegroups.com>
Source record: 62746

Yuri Blanarovich wrote:
> <w8ji@akorn.net> wrote
>
> > This long painful thread (it's been going on years now) started because
> > K3BU claimed a loading inductor had most of the current in the first
> > few turns.
>
> I am back after looooong absence here and see more misinformation coming from
> Tom, W8JI.
>
> I claimed that current in the antenna coil is NOT CONSTANT (or near) as he
> claimed.
> The case was of electrical quarter wave vertical radiator (as loaded mobile
> antenna) and that the current is distributed, varying across the coil as I
> have experienced, W9UCW has measured and Cecil has explained.

Yuri,

Why don't you explain in a few words how you think the loading coil
works?

Also, why do you think a mobile antenna is "90 degrees long" when it
has a loading coil?

The loading coil, if well-designed and of compact size, doesn't have to
have any significant current taper. The exception would be if the
antenna above the coil has small capacitance compared to distributed
capacitance from the coil to space or to ground.

Do you still disagree with this?

73 Tom

3086. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 22:12:30 UTC
From: richardharrison@webtv.net
Message-ID: <28826-441DD74E-1848@storefull-3255.bay.webtv.net>
Source record: 62747

Bob Miller wrote:
"Can anyone point me at a dood book or website that can teach me about antenna theory from a beginner`s viewpoint?"

The ARRL 2006 Handbook devotes Chapter 22 to that task and provides a good bibliography at the end of the chapter for further study.

Best regards, Richard Harrison, KB5WZI

3087. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 22:58:53 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <NmlTf.48584$F_3.35415@newssvr29.news.prodigy.net>
Source record: 62748

Owen Duffy wrote:
> The currents in the stubs is an explanation for the difference in the
> currents in the main radiator at each side of the stub connection.

Just as are the currents in the coils.

> Is it fair to say that though the diagram may resemble the first
> diagram on the page, to some extent, the reason they are similar is
> that the second one is incomplete.

I sent you a .gif file giving you the full perspective.

> My point is really about whether the subject diagram supports your
> argument, especially if it is incomplete and if it misrepresents the
> scenario.

The phase shift through the stub is the same as through the coil is
the same as through the wire. It is simply zero according to the
standing wave current phase which is incapable of measuring phase.
--
73, Cecil http://www.qsl.net/w5dxp

3088. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 23:06:59 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <nulTf.5051$x94.4451@newsread1.news.pas.earthlink.net>
Source record: 62749

Reg,

The type of antenna you describe is very useful and popular.

However, your assertion is much too sweeping as a generalization.
In no particular order, here are some caveats:
1. The qualifier "best" is largely meaningless, absent an agreed
set of weighted criteria for "goodness." (How important is:
size? weight? cost? visual profile? bandwidth? instant QSY?
gain? pattern? low-band performance vs. high-band performance?
power-handling capacity? need for tuner? etc., etc., etc.)
2. A good case can be made that choosing the "right" length is
"better" than a random length, within this type.
3. An excellent case can be made that center-fed is NOT always
the "best" option, within this type.
4. I'll let the fans of this antenna type chime in with why they
prefer balanced tuners and/or tuned feeders to the use of an
unbalanced tuner... if they want to. (I use more tailored antennas,
and don't need a tuner of any kind, most of the time.)

73, Ed

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
news:dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
> The best, all round, all band, antenna is a high centre-fed dipole of
> no particular length, fed with an open-wire feedline of no particular
> length or impedance, all the way to the shack, used with a choke-balun
> and an unbalanced tuner.
>
> It is good down to the frequency at which the dipole is about
> 1/3-wavelength long.
>
> Simplicity = efficiency.
>
> Once tried you will never return to anything else.
> ----
> Reg.
>
>

3089. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 23:14:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <yBITf.48589$F_3.8960@newssvr29.news.prodigy.net>
Source record: 62750

Yuri Blanarovich wrote:
> I claimed that current in the antenna coil is NOT CONSTANT (or near) as he
> claimed.

Only one out of a dozen tests run by W8JI and W7EL showed the
currents to be equal. All the other tests showed the currents to be
unequal.

> The significance of properly realizing the current distribution in the
> loading coil is in how the modeling programs treat the phenomena and major
> screw-up will show up in multi element loaded antenna systems, where error
> will multiply and give false results.

The helix option in EZNEC supports the notion that the currents
are hardly ever equal. If a coil is installed at a standing wave current
maximum or minimum the currents can be equal. If the coil is installed
at a point where the slope of the current is maximum, the difference
in the currents at each end will be maximum. That's pretty simple physics.
The currents at each end of a coil in a standing wave environment depends
upon where it is installed.

I provided an example where the current "into" the bottom of the coil
was 0.17 amps and the current "out of" the top of the coil was 2.0 amps.
W8JI said the lumped-circuit inductance could explain that so I asked
him to explain it to all of us. So far, no response.

Wonder how a model that assumes faster than light propagation of waves
and absolutely equal current magnitude and phase is going to explain a
1.8 amp difference and a phase shift of 180 degrees?
--
73, Cecil http://www.qsl.net/w5dxp

3090. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 23:21:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <AHlTf.48593$F_3.47355@newssvr29.news.prodigy.net>
Source record: 62751

Tom Donaly wrote:
> Cecil, that's the worst analogy I've ever read in my
> life.

The PSK signals lose phase when they are superposed. The forward
and reflected currents lose phase when they are superposed. Looks
like a perfect analogy to me. Do you disagree with Gene Fuller?

> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase.

Do you disagree with Gene? How can Tom and Roy possibly use a signal
whose phase cannot be recovered to measure phase?
--
73, Cecil http://www.qsl.net/w5dxp

3091. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 23:36:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <iWITf.48603$F_3.6848@newssvr29.news.prodigy.net>
Source record: 62752

w8ji@akorn.net wrote:
> The loading coil, if well-designed and of compact size, doesn't have to
> have any significant current taper.

The current taper depends upon where the coil is installed in
the standing wave environment. There is no doubt that the coil
distorts the current away from the ideal thin-wire dipole case.
But that coil does have to have a significant delay, in the tens
of degrees according to Dr. Corum. Since you and Roy mistakenly
used standing wave current phase to try to measure the delay
through a coil, the following posting resulted:

> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase.

Gene is 100% correct and we all should be grateful for that posting.

Neither you nor Roy have ever made a valid measurement of the
delay through a coil. It is admittedly a difficult measurement
to make directly. Ramo and Whinnery say it "is usually of
prohibitive difficulty".
--
73, Cecil http://www.qsl.net/w5dxp

3092. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-19 23:49:54 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <C6mTf.55213$H71.34551@newssvr13.news.prodigy.com>
Source record: 62753

Cecil Moore wrote:
> Owen Duffy wrote:
>
>> The currents in the stubs is an explanation for the difference in the
>> currents in the main radiator at each side of the stub connection.
>
>
> Just as are the currents in the coils.
>
>> Is it fair to say that though the diagram may resemble the first
>> diagram on the page, to some extent, the reason they are similar is
>> that the second one is incomplete.
>
>
> I sent you a .gif file giving you the full perspective.
>
>> My point is really about whether the subject diagram supports your
>> argument, especially if it is incomplete and if it misrepresents the
>> scenario.
>
>
> The phase shift through the stub is the same as through the coil is
> the same as through the wire. It is simply zero according to the
> standing wave current phase which is incapable of measuring phase.

For anyone who is foolish enough to believe Cecil when he says that
all phase information is lost when two oppositely traveling waves create
a standing wave, consider the following, adapted from Georg Joos book
Theoretical Physics:
consider two traveling waves going in opposite
directions represented mathematically by Ae^i(wt-kx) + Ae^i(wt+kx+d)
where A is the same amplitude for both waves, i is the square root
of -1, k is 2*pi/wavelength, w is the radian frequency, t is time,
x is distance, and d is the phase difference between the two waves.
This is just another way of writing 2Acos(kx+d/2)(e^i(wt+d/2). Notice
that the part cos(kx+d/2) still contains the phase information?
If Cecil were any kind of experimentalist he could easily tease the
phase information out of any standing wave on his antenna system.
73,
Tom Donaly, KA6RUH

3093. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:13:44 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1142813624.391779.279150@t31g2000cwb.googlegroups.com>
Source record: 62754

Roy wrote, "... That is, the coil is capacitively coupled to ground,
and this
causes displacement current from the coil to ground."

In fact, if there were no such current -- if there were no capacitance from the coil to the world outside the coil -- then the time delay through the coil, calculated from tau = sqrt(L*C), would be zero. It is exactly this current that allows there to be a transmission-line behaviour and a corresponding time delay.

That's not to say, however, that a physically very small loading coil with practically no capacitance to ground would not work as a loading coil. It just wouldn't have a transmission line behaviour worth mentioning.

It is also exactly this displacement current from a large coil that allows the current at one end of the coil to be substantially different from the current at the other end.

Cheers,
Tom

3094. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:25:16 UTC
From: w8ji@akorn.net
Message-ID: <1142814316.040782.285000@i39g2000cwa.googlegroups.com>
Source record: 62755

K7ITM wrote:
> Roy wrote, "... That is, the coil is capacitively coupled to ground,
> and this
> causes displacement current from the coil to ground."
>
> In fact, if there were no such current -- if there were no capacitance
> from the coil to the world outside the coil -- then the time delay
> through the coil, calculated from tau = sqrt(L*C), would be zero. It
> is exactly this current that allows there to be a transmission-line
> behaviour and a corresponding time delay.
>
> That's not to say, however, that a physically very small loading coil
> with practically no capacitance to ground would not work as a loading
> coil. It just wouldn't have a transmission line behaviour worth
> mentioning.
>
> It is also exactly this displacement current from a large coil that
> allows the current at one end of the coil to be substantially different
> from the current at the other end.
>
> Cheers,
> Tom

Thanks Tom and others,

I've been trying to tell Yuri (and others) that for three years now.

The current reduction at the antenna end of a loading coil is actually dependent on the ratio of the termination impedance to the distributed capacitance (to the outside world) of the loading inductor.

One extreme would be something like a Tesla coil or helical whip, where the open end is open with virtually all capacitance distributed. The other extreme is an antenna with a reasonable amount of antenna capacitance above the inductor and a reasonably compact inductor.

I think what everyone has forgotten is a large amount of current taper in a loading coil of a short monopole, while possible, is a good indicator of a very poor antenna design.

I think it's a shame that useful things to learn are buried in all the noise.

73 Tom

3095. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:30:27 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <DImTf.57815$Jd.30091@newssvr25.news.prodigy.net>
Source record: 62757

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> Cecil, that's the worst analogy I've ever read in my
>> life.
>
>
> The PSK signals lose phase when they are superposed. The forward
> and reflected currents lose phase when they are superposed. Looks
> like a perfect analogy to me. Do you disagree with Gene Fuller?
>
>> Gene Fuller, W4SZ wrote:
>>
>>> In a standing wave antenna problem, such as the one you describe,
>>> there is no remaining phase information. Any specific phase
>>> characteristics of the traveling waves died out when the startup
>>> transients died out.
>>>
>>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen
>>> again.
>>>
>>> The only "phase" remaining is the cos (kz) term, which is really an
>>> amplitude description, not a phase.
>
>
> Do you disagree with Gene? How can Tom and Roy possibly use a signal
> whose phase cannot be recovered to measure phase?

But Cecil, it can be recovered. See my earlier remarks.
73,
Tom Donaly, KA6RUH

3096. Re: aluminium element segment corrosion & weather proofing... ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:31:05 UTC
From: "John, N9JG" <john@gotwals.XremoveY.com>
Message-ID: <dJmTf.833974$x96.433386@attbi_s72>
Source record: 62756

Another product that works very well is Lawson 59933 Copper Anti-Seize
Anti-Corrosion Compound
http://webapp.lawsonproducts.com/website/showItem?itemNum=59933
This is the same product that comes with a Butternut vertical antenna. It
consists of a synthetic grease base, copper, thickener, and rust inhibitor.
It can withstand temperature ranges from -65&#65533;F to 1800&#65533;F, which should be
adequate for most ham applications.

John, N9JG

"KenW" <kenw@no_way.net> wrote in message
news:b8po12lhi8i7huql2f4cjbnof1ue6uqvj0@4ax.com...
> On Sat, 18 Mar 2006 19:16:51 GMT, Cecil Moore <mycall@hotmail.com>
> wrote:
>
>>Kba wrote:
>>> just have some plans for yagi construction, but yagi tapering
>>> segments may need some corrosion & weather protection...
>>> Any recommendations ?
>>> Aluminum powder or grease ? or without ??
>>
>>There's a conductive compound that reduces oxidation. It's
>>sold under various brand names. Oxiguard comes to mind
>>but that may be a toothpaste compound or some such. :-)
>
> Besides compound in the joints I have always used Krylon clear spray
> paint. Antennas look like new for a few years.

3097. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:31:51 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <XJmTf.61652$dW3.49365@newssvr21.news.prodigy.com>
Source record: 62758

Tom Donaly wrote:
> This is just another way of writing 2Acos(kx+d/2)(e^i(wt+d/2). Notice
> that the part cos(kx+d/2) still contains the phase information?
> If Cecil were any kind of experimentalist he could easily tease the
> phase information out of any standing wave on his antenna system.

I have previously teased that information from that equation.
Perhaps you forgot. It's how to determine the exact phase
shift along a thin-wire 1/2WL dipole. I showed how to do that
days/weeks/years ago. It's the *phase* of the standing wave
current that does not yield any phase information. I have been
very careful with that caveat in my statements.

cos(kx+d/2) indeed does still contain the phase information.
If you will re-read my postings, you will see that I said
the *PHASE* term of the reflected current doesn't contain any
phase information. FYI, that's the e^i(wt+d/2) term and that
part is what Roy used to make his phase measurements which
has been my objection for years. It's all archived on Google.

It is I, not Roy or Tom, who used the phase information in
cos(kx+d/2) to determine phase. When the term containing
the phase information is actually used, the delay through
the coil is shown to be in the tens of degrees.

In the 1/2WL thin-wire dipole, the phase shift between two
points is arc-cos(amplitude1) - arc-cos(amplitude2). The
only phase information is, as you and Gene Fuller rightly
assert, in the amplitude of the standing wave current, NOT
in the phase of the standing wave current that Roy measured.

If the e^i(wt+d/2) term is used, as Roy and Tom have done,
it suffers from the absence of any phase information at all.

Gene Fuller said it all days ago:
> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.

i.e. there's no remaining phase information in e^i(wt+d/2) term.

>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase.

i.e. there is phase information in the cos(k+d/2) term, but
that's not the part of the wave that Roy and Tom were using
to determine delay through the coil. I have been hoping someone
would jump in who understood the math.

To summarize: cos(kx+d/2) is proportional to the *amplitude* of
the standing wave current. When I used the amplitude of the
standing wave current to estimate the phase, the gurus
objected.

e^i(wt+d/2) is proportional to the phase of the standing wave
current and, ironically contains no phase information, just as
Gene asserted. Yet, this is what Roy chose to measure in trying
to determine the phase shift through a coil and that's the entire
problem with his measurements. He was expecting to measure zero
phase shift and he did because there was no phase shift information
available from his measurement of the e^i(wt+d/2) term.

I told Roy a long time ago, in general, how to calculate the phase
shift from the cos(kx+d/2 amplitude term but he replied with
"gobbledygook" or some such.
--
73, Cecil http://www.qsl.net/w5dxp

3098. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:35:53 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <JNmTf.57818$Jd.49032@newssvr25.news.prodigy.net>
Source record: 62759

Cecil Moore wrote:

> w8ji@akorn.net wrote:
>
>> The loading coil, if well-designed and of compact size, doesn't have to
>> have any significant current taper.
>
>
> The current taper depends upon where the coil is installed in
> the standing wave environment. There is no doubt that the coil
> distorts the current away from the ideal thin-wire dipole case.
> But that coil does have to have a significant delay, in the tens
> of degrees according to Dr. Corum. Since you and Roy mistakenly
> used standing wave current phase to try to measure the delay
> through a coil, the following posting resulted:
>
>> Gene Fuller, W4SZ wrote:
>>
>>> In a standing wave antenna problem, such as the one you describe,
>>> there is no remaining phase information. Any specific phase
>>> characteristics of the traveling waves died out when the startup
>>> transients died out.
>>>
>>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen
>>> again.
>>>
>>> The only "phase" remaining is the cos (kz) term, which is really an
>>> amplitude description, not a phase.
>
>
> Gene is 100% correct and we all should be grateful for that posting.
>
> Neither you nor Roy have ever made a valid measurement of the
> delay through a coil. It is admittedly a difficult measurement
> to make directly. Ramo and Whinnery say it "is usually of
> prohibitive difficulty".

I think that if Gene believes that, he should redo his math.
73,
Tom Donaly, KA6RUH

3099. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:39:12 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QQmTf.61672$dW3.54557@newssvr21.news.prodigy.com>
Source record: 62760

K7ITM wrote:
> In fact, if there were no such current -- if there were no capacitance
> from the coil to the world outside the coil -- then the time delay
> through the coil, calculated from tau = sqrt(L*C), would be zero. It
> is exactly this current that allows there to be a transmission-line
> behaviour and a corresponding time delay.

Tom, have you read what Dr. Corum had to say about that on
page 8 of http://www.ttr.com/corum/index.htm? Here's a partial
quote: "The problem has been that many experimenters working
self-resonant helices have pursued the concept of coil self-
capacitance without really understanding where the notion
comes from or why it was ever invoked by engineers."
--
73, Cecil http://www.qsl.net/w5dxp

3100. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:46:34 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <KXmTf.61676$dW3.919@newssvr21.news.prodigy.com>
Source record: 62761

w8ji@akorn.net wrote:
> I think what everyone has forgotten is a large amount of current taper
> in a loading coil of a short monopole, while possible, is a good
> indicator of a very poor antenna design.

While zero current taper in a loading coil is a good indicator
of a confused engineer, unless of course, there's a current
maximum inside the coil or a very large top hat. The current
taper depends upon where the coil is installed in the standing
wave antenna system. Some positions can result in current flowing
into both ends of the coil at the same time, just like a transmission
line. But the delay through an HF loading coil is *NEVER* 3 nS.

Say Tom, you were going to explain to us how the lumped-circuit
inductor theory handles a coil with 0.17 amps at zero degrees
at the bottom of the coil and 2.0 amps at 180 degrees at the
top. We are still waiting.
--
73, Cecil http://www.qsl.net/w5dxp

3101. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:56:45 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <h5nTf.61690$dW3.60688@newssvr21.news.prodigy.com>
Source record: 62763

Tom Donaly wrote:
> But Cecil, it can be recovered. See my earlier remarks.

Yes, it can be recovered and I showed how years ago. Roy and Tom rejected that approach and instead reverted to measuring the phase of the standing wave current which is known to contain zero phase information. Go figure.

Seriously, I showed those two how to calculate the phase shift in a 1/2WL thin-wire dipole using an arc-cos function. They responded with a personal attack. It's all on Google.

If you will check my past postings on Google, you will find me saying, if the current at the base of the coil is one amp, we can estimate the phase shift through the coil by arc-cos(It) where It is the current out of the top of the coil. That is admittedly a very rough estimate since the coil distorts the current away from a perfect cosine envelope but it is closer than measuring the phase of a signal whose phase is known to be unchanging.
--
73, Cecil http://www.qsl.net/w5dxp

3102. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 00:56:51 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <z5nTf.174$wg6.140@fe10.lga>
Source record: 62762

>
> I've been trying to tell Yuri (and others) that for three years now.
>
>
> 73 Tom
>
Tom.
You tell that to the RF ammeters installed on the vertical, W9UCW's pictures on my page!
You can mumbo-jumbo all the theory, you can dream of, but reality shows that in the say, quarter wave vertical, with loading coil the current at both ends of the coil is different. Cecil explained the various situation depending where the coil is placed within the radiator and at overall antenna curve.

Try this test, no meters necessary (perhaps the aquarium strip thermometer): Take your 80m Hustler antenna with Hustler loading coil and whip. At the resonant frequency put about 600 Watts to it for a while. Stop transmitting and go feel (or read the temperature on the strips) the coil, bottom end and the top end. Same temperature? Temperature is proportional to the current flow (same diameter wire) - warmer end - more current.

Then test two: Keep the RF flowing until heat shrink tubing on the coil starts melting. Where does it melt first? Bottom of the coil or nicely uniformly as you claim it should?

Then answer Cecil question about his demonstration of different currents at the ends!
The rest is on my web page as I mentioned, with pictures.

73 Yuri, www.K3BU.us

3103. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 01:01:44 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <Y9nTf.61693$dW3.27436@newssvr21.news.prodigy.com>
Source record: 62764

Tom Donaly wrote:
>>> Gene Fuller, W4SZ wrote:
>>>> In a standing wave antenna problem, such as the one you describe,
>>>> there is no remaining phase information. Any specific phase
>>>> characteristics of the traveling waves died out when the startup
>>>> transients died out.
>>>>
>>>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be
>>>> seen again.
>>>>
>>>> The only "phase" remaining is the cos (kz) term, which is really an
>>>> amplitude description, not a phase.

> I think that if Gene believes that, he should redo his math.

Tom, the math equations that you posted supports Gene's assertions 100%.
They are essentially identical to the same equations that Gene posted.
Many thanks to both of you guys for posting the technical facts.
--
73, Cecil http://www.qsl.net/w5dxp

3104. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 02:08:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121s3k66tfvcq9d@corp.supernews.com>
Source record: 62765

K7ITM wrote:
> Roy wrote, "... That is, the coil is capacitively coupled to ground,
> and this
> causes displacement current from the coil to ground."
>
> In fact, if there were no such current -- if there were no capacitance
> from the coil to the world outside the coil -- then the time delay
> through the coil, calculated from tau = sqrt(L*C), would be zero. It
> is exactly this current that allows there to be a transmission-line
> behaviour and a corresponding time delay.

Yes. And this, not the C across the coil, is what should be used for transmission line formulas when treating an inductor as a transmission line. When the ground was removed and replaced by a wire, the transmission line properties of the coil changed dramatically, while the C across the coil didn't change significantly.

> That's not to say, however, that a physically very small loading coil
> with practically no capacitance to ground would not work as a loading
> coil. It just wouldn't have a transmission line behaviour worth
> mentioning.
>
> It is also exactly this displacement current from a large coil that
> allows the current at one end of the coil to be substantially different
> from the current at the other end.

Yes again, with one slight modification. You'll note from the EZNEC models that the current actually increases some as you go up from the bottom of the inductor. This is the effect noted by King which is due to imperfect coupling between turns. It results in currents at both ends being less than at the center.

A transmission line can be represented by a series of L networks with series L and shunt C. You can achieve any desired accuracy by breaking the total L and C into enough L network sections. The requirement for validity is that the length of line represented by each section must be very small relative to a wavelength. For the example coil, a single section is entirely adequate at the 5.89 MHz frequency of analysis. However, at some higher frequency this model won't be adequate, and either more L sections or a distributed model is necessary. If the reasons for this aren't obvious, many texts cover it quite well. No special "traveling wave" analysis is required.

I spent several years of my career designing very high speed TDR and sampling circuits, which involved a great deal of modeling. At the tens of GHz equivalent bandwidths of the circuitry, even very small

structures such as chip capacitors and short connecting runs often had to be treated as transmission lines. One of the skills important to building an accurate model which would run in a reasonable amount of time, particularly on the much slower machines being used in the earlier part of that period, is determining when a lumped L, pi, or tee model is adequate and when a full-blown transmission line model has to be used(*). My models were used in the development of quite a number of circuits that were successfully produced in large numbers.

(*) One of the characteristics of the SPICE programs at the time was that the time step was never longer than the delay of the shortest transmission line in the model. So if you willy-nilly modeled everything as a transmission line, you'd end up with an excruciatingly short time step and consequently unnecessarily long calculation time.

Roy Lewallen, W7EL

3105. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 02:33:39 UTC
From: w8ji@akorn.net
Message-ID: <1142822019.697783.255030@z34g2000cwc.googlegroups.com>
Source record: 62766

Cecil Moore wrote:
> K7ITM wrote:
> > In fact, if there were no such current -- if there were no capacitance
> > from the coil to the world outside the coil -- then the time delay
> > through the coil, calculated from tau = sqrt(L*C), would be zero. It
> > is exactly this current that allows there to be a transmission-line
> > behaviour and a corresponding time delay.
>
> Tom, have you read what Dr. Corum had to say about that on
> page 8 of http://www.ttr.com/corum/index.htm? Here's a partial
> quote: "The problem has been that many experimenters working
> self-resonant helices have pursued the concept of coil self-
> capacitance without really understanding where the notion
> comes from or why it was ever invoked by engineers."

Cecil,

You keep trying to drag something from a self-resonant helice into a
loading coil discussion.

The two are nearly at opposite extremes in behavior, but even at that
the self-resonant helice can be analyzed with standar L/C analysis.

It's just another way to analyze things, and it's just one way of doing
it.

73 Tom

3106. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 02:47:43 UTC
From: w8ji@akorn.net
Message-ID: <1142822862.985006.247970@t31g2000cwb.googlegroups.com>
Source record: 62767

Yuri Blanarovich wrote:

> Tom.
> You tell that to the RF ammeters installed on the vertical, W9UCW's pictures
> on my page!

1.) I can build an antenna that has greatly uneven currents at the ends
of the loading coil, but the antenna rea above the inductor is wasted
and the system will be less efficient than a properly designed system.

2.) The meters are large and have a good deal of self-capacitance
compared to the capacitance at the point where they are connected, and
are directly connected to the antenna. Bad idea to base a whole concept
of how an antenna works on something like that.

> You can mumbo-jumbo all the theory, you can dream of, but reality shows that
> in the say, quarter wave vertical, with loading coil the current at both
> ends of the coil is different.

It can be different, but in a well designed system it is essentially
the same. The only difference is caused by displacement currents, and
that is a result of stray capacitance. Wind a good coil that has low
self-C to the outside world compared to the antenna hanging above the
coil, and the problem of large uneven current goes away.

>Cecil explained the various situation
> depending where the coil is placed within the radiator and at overall
> antenna curve.

I doubt that. If he explained it in those terms he was missing some
important points.

> Try this test, no meters necessary (perhaps the aquarium strip thermometer):
> Take your 80m Hustler antenna with Hustler loading coil and whip. At the
> resonant frequency put about 600 Watts to it for a while. Stop transmitting
> and go feel (or read the temperature on the strips) the coil, bottom end and
> the top end. Same temperature? Temperature is proportional to the current
> flow (same diameter wire) - warmer end - more current.

Are you saying thermal effects have no bearing?

It's getting pretty dangerous to write a theory based only on a Hustler
mobile coil with almost no stinger above the coil. One of the reasons
the Hustler works so poorly is the distributed capacitance in the coil
is large compared to the tiny stinger above the coil.

The Hustler has narrow bandwidth and poor efficiency because of the
coil design.

> Then test two: Keep the RF flowing until heat shrink tubing on the coil
> starts melting. Where does it melt first? Bottom of the coil or nicely
> uniformly as you claim it should?

I never claimed uniformly in ALL coils. I set boundaries as to the conditions. I can replace that Hustler coil with another coil and ruin your theory about standing waves and missing antenna degrees.

73 Tom

3107. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 03:15:00 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <HqCdnQSqnc6vg4PZnZ2dnUVZ_uidnZ2d@adelphia.com>
Source record: 62768

ml wrote:
> hi
>
>
> i am pondering this again after thinking the odds of being about to put
> a beam up are slim
>
> currently i have a nice dipole CF horiz via a topside sgc , i am happy
> w/it
>
>
> i think i might be able to get a verticle (all bander) up there but then
> i wonder
>
> overall if it would really pay from just a performance point of view
>
> the reviews i see i personally average as some signals would prob come
> in bettter on one and some signals the other 'depending'

And HOW!
I've been running some experiments comparing the two, and frankly have been having some problems simplifying the experiment enough to make good sense and be valid at the same time.

Some times the vertical works better, and sometimes the horizontal works better. I'm having a heck of a time correlating exactly *why and when* (I'm not the only one - some Dutch amateurs got some surprising results when they tried to decipher what would be the best antenna to use in the PA contest. Some signals predicted to come in Groundwave were coming in Skywave, and vice versa - this was covered in a recent QST)

What I have seen from my experiments has led me to believe that the answer to "dipole vs Vertical is an emphatic, no question about it one answer only - YES!

You want both antennas if you can do it. Anyone who declares one or the other the winner is simply wrong.

- 73 de Mike KB3EIA -

3108. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 03:39:33 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <2upTf.185$wg6.164@fe10.lga>
Source record: 62769

<w8ji@akorn.net> wrote in message
news:1142822862.985006.247970@t31g2000cwb.googlegroups.com...
>
> Yuri Blanarovich wrote:
>
>> Tom.
>> You tell that to the RF ammeters installed on the vertical, W9UCW's
>> pictures
>> on my page!
>
> 1.) I can build an antenna that has greatly uneven currents at the ends
> of the loading coil, but the antenna rea above the inductor is wasted
> and the system will be less efficient than a properly designed system.
>
> 2.) The meters are large and have a good deal of self-capacitance
> compared to the capacitance at the point where they are connected, and
> are directly connected to the antenna. Bad idea to base a whole concept
> of how an antenna works on something like that.
>
>> You can mumbo-jumbo all the theory, you can dream of, but reality shows
>> that
>> in the say, quarter wave vertical, with loading coil the current at both
>> ends of the coil is different.
>
> It can be different, but in a well designed system it is essentially
> the same. The only difference is caused by displacement currents, and
> that is a result of stray capacitance. Wind a good coil that has low
> self-C to the outside world compared to the antenna hanging above the
> coil, and the problem of large uneven current goes away.
>
>>Cecil explained the various situation
>> depending where the coil is placed within the radiator and at overall
>> antenna curve.
>
> I doubt that. If he explained it in those terms he was missing some
> important points.
>
>> Try this test, no meters necessary (perhaps the aquarium strip
>> thermometer):
>> Take your 80m Hustler antenna with Hustler loading coil and whip. At the
>> resonant frequency put about 600 Watts to it for a while. Stop
>> transmitting
>> and go feel (or read the temperature on the strips) the coil, bottom end
>> and

>> the top end. Same temperature? Temperature is proportional to the current
>> flow (same diameter wire) - warmer end - more current.
>
> Are you saying thermal effects have no bearing?
>
> It's getting pretty dangerous to write a theory based only on a Hustler
> mobile coil with almost no stinger above the coil. One of the reasons
> the Hustler works so poorly is the distributed capacitance in the coil
> is large compared to the tiny stinger above the coil.
>
> The Hustler has narrow bandwidth and poor efficiency because of the
> coil design.
>
>> Then test two: Keep the RF flowing until heat shrink tubing on the coil
>> starts melting. Where does it melt first? Bottom of the coil or nicely
>> uniformly as you claim it should?
>
> I never claimed uniformly in ALL coils. I set boundaries as to the
> conditions. I can replace that Hustler coil with another coil and ruin
> your theory about standing waves and missing antenna degrees.
>
> 73 Tom
>

Yea Tom, it all started with ALL coils, it is MY theory and you can ruin MY theory. Riiiight! It's getting pathetic. Yea, meters are too big, Hustler is crapy, Cecil is wrong, and you never claimed uniformly in all coils, just those that you have. Reality is wrong, your "theory" is right! Rrrrright!!! But what a coincidence that what W9UCW measured, jives with what Cecil calculated. Hmmm!

ANSWER Cecil's question about his modeled example. I guess when someone is stuck on something and dunt gitit, its tough!
I am just waiting how you will come around, dancing around in mumbo-jumbo circles and then will become guru on how current IS different in the loading coils. Happened in the past, will happen again. You are WRONG, reality proves it, regardless of your detours.

BTW, what engineering degree, from what university do you have or PE that gives you right to put labels like "JI Engineering" on your products?

bada BUm

3109. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 04:18:26 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <80bs125aalppg522mun6hr442egt3bk97i@4ax.com>
Source record: 62770

On Sun, 19 Mar 2006 22:15:00 -0500, Mike Coslo
<mremovethiscoslo@adelphia.net> wrote:

> Some times the vertical works better, and sometimes the horizontal
>works better. I'm having a heck of a time correlating exactly *why and

Mike, we need a clear definition of the meaning of "works" in your
data gathering and analysis.

Owen
--

3110. Re: Ink

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 04:27:48 UTC
From: Dave Turner <not@dave>
Message-ID: <441e2f14@quokka.wn.com.au>
Source record: 62771
Cross-posted to: rec.ponds,rec.puzzles,rec.puzzles.crosswords,rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

```
> whois imagraphix.com

Registrant:
Murphey Shaw
12 Blackwatch Trail Fairport, NY 14450
,
United States

Registered through: GoDaddy.com
Domain Name: IMAGRAPHIX.COM
Created on: 09-Dec-04
Expires on: 09-Dec-07
Last Updated on: 14-Feb-06

Administrative Contact:
Shaw, Murphey mshawjr@frontiernet.net
12 Blackwatch Trail Fairport, NY 14450
,
United States
5854148735

Technical Contact:
DNS, Administrator administrator@siteprotect.com
1 N State Street 12th Floor Chicago, IL 60602
,
United States
+1.3122362132 Fax -- +1.3122361958

Domain servers in listed order:
NS3.SECURESERVER.NET
NS4.SECURESERVER.NET
```

3111. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 04:33:23 UTC
From: pbourget <pbourget@gmail.com>
Message-ID: <1142829203.202168.151620@i40g2000cwc.googlegroups.com>
Source record: 62772

I have a all band trap vertical and an all band linear loaded dipole.
Some days one is better than the other. It depends on propagation.
Often the verticle is stronger but the contact is easier to make on the
dipole because it is quieter. I would put both up if you have the room.

Pete W6OP

3112. Looking for the right connector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 04:57:32 UTC
From: Ken Bessler <kg0wx@coxNOSPAM.net>
Message-ID: <3DqTf.62056$Dh.37069@dukeread04>
Source record: 62773

I'm installing 802.11b/g in my IBM ThinkPad T23. I've done quite
a bit of research and got a 250mw WiFi internal (mini PCI) card,
2 micro coax (1.37mm OD) antenna leads and I'm building two
antennas but I'm stumped on how to connect the antennas to the
laptop.

Ideally the connectors should be inline, like a headphone extension
cable. The connectors will be secured to the rear of the LCD display
in a way so that they point up when the display is open yet the antennas
can be removed when I close the screen.

Should I just use the 2 leftover Elecraft BNC chassis mounts I have?
Anyone have a better (smaller) choice? What about RCA or 3/32"
headphone plugs? Would they present too much of an impedance
bump at 5.1ghz?

--
73's de Ken KG0WX - Kadiddlehopper #11808,
Flying Pigs #-1055, Grid EM17io,
Elecraft K2 #4913, XG2, 4SQRP Tenna Dipper,
Heath GD-1B, MP-1(X) antenna & HLA-150 amplifier.

3113. Re: Looking for the right connector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 05:28:39 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <75r1f3-d8m.ln1@p400bob.personal.cox.net>
Source record: 62774

Hi Ken

Yes stay away from RCA and headphone plugs, for exactly the reason you mentioned.

I'd recommend SMA plugs and sockets, They are in pretty standard use up to about 12GHz. Make sure you terminate them properly or have some cables made up.

I'd also be careful using that thin coax over any kind of distance. The losses will really mount up!

Cheers Bob

Ken Bessler wrote:
> I'm installing 802.11b/g in my IBM ThinkPad T23.

3114. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 06:17:37 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <121si85t70k5sd6@corp.supernews.com>
Source record: 62775

Richard Miller wrote:
> Hi
>
> I was just digging around the garage and I found my old multi band trap
> vertical antenna LOL.. Anyway it covered 80m to 10m and I got it from Dick
> Smith back in the 80's that's a long time ago.. Dos anyone have a diagram
> for one of them I can not find mine but still looking for it.. Can any one
> help..
>
>
>
>
>
>
>
> 73's Regards,
>
> Richard Miller
> E-mail: wizzard6@optusnet.com.au
>
>
>
Check out DXEngineering and see if by chance they have the parts you
need. They carry several different model lparts and mods (I think
mods). Bunch of good guys there for sure.

73, Butch KF5DE

3115. Re: Looking for the right connector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 06:20:11 UTC
From: Ken Bessler <kg0wx@coxNOSPAM.net>
Message-ID: <CQrTf.62064$Dh.50757@dukeread04>
Source record: 62676

"Bob Bob" <bob3bob3@cox.net> wrote in message
news:75r1f3-d8m.ln1@p400bob.personal.cox.net...
> Hi Ken
>
> Yes stay away from RCA and headphone plugs, for exactly the reason you
> mentioned.
>
> I'd recommend SMA plugs and sockets, They are in pretty standard use up
> to about 12GHz. Make sure you terminate them properly or have some
> cables made up.
>
> I'd also be careful using that thin coax over any kind of distance. The
> losses will really mount up!
>
> Cheers Bob

Thanks for the tips, Bob. I was worried about losses but I downloaded the factory data sheet for this coax - for a 500mm run, I'm looking at a loss of 0.94db @ 2.4ghz and 1.53db @ 5.1ghz. I tried finding the internal connector (U.FL type) but gave up when I saw DigiKey selling a 1000mm cable with U.FL connectors installed on both ends. I cut the cable in half. The cable looks like good stuff - VERY tiny but well built. $10....

I'll look into SMA connectors - does anyone know if they make a push on variant?

Ken KG0WX

3116. Re: Looking for the right connector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 06:26:47 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121sip9rvkvq94a@corp.supernews.com>
Source record: 62677

Ken Bessler wrote:
> . . .
> I'll look into SMA connectors - does anyone know if they make a push on
> variant?

SMB is probably what you want.

Roy Lewallen, W7EL

3117. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 07:23:54 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121sm4codnhupa5@corp.supernews.com>
Source record: 62678

Correction:

Roy Lewallen wrote:
> K7ITM wrote:
>> . . .
>> It is also exactly this displacement current from a large coil that
>> allows the current at one end of the coil to be substantially different
>> from the current at the other end.

[I wrote:]
> Yes again, with one slight modification. You'll note from the EZNEC
> models that the current actually increases some as you go up from the
> bottom of the inductor. This is the effect noted by King which is due to
> imperfect coupling between turns. It results in currents at both ends
> being less than at the center.

Tom's statement doesn't need modification, it's correct as written.
Imperfect coupling between turns causes current which is different at
the ends than in the middle. Tom said, correctly, that displacement
current is the cause of the currents at the ends being different from
each other.

Roy Lewallen, W7EL

3118. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 09:14:58 UTC
From: richardharrison@webtv.net
Message-ID: <2813-441E7292-2246@storefull-3257.bay.webtv.net>
Source record: 62679

Tom, W8JI wrote:
"What you are missing is the flux inside the coil links all the turns at light speed. When it does that, current appears at nearly the same instant of time (light speed over the spatial distance of the inductor) in all areas that are linked by flux."

Are any famous authors protagonists of that theory?

One author, Bill Orr, W6SAI writes in the 22nd edition of "Radio Handbook" on page 5.11:
"Spaced closely around the beam (in a TWT) is a circuit, in this case a helix of tightly wound wire, capable of propagating a slow wave. The r-f energy travels along the wire at the velocity of light but, because of the helical path, the energy progresses along the length of the tube at a considerably lower velocity that is determined by the pitch of the helix.

Maybe Varian has a paper on this (just my speculation).

Best regards, Richard Harrison, KB5WZI

3119. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 10:18:39 UTC
From: ml <m@di.net>
Message-ID: <m-4619CE.05183320032006@news.verizon.net>
Source record: 62680

thanks very much to all those that replyed,

but don't forget, we all agree that somtimes the dipole will work better
sometimes the vert but the realy trick i wonder about is how many times
will the vert be useful

my guess is prob 50/50 but wasn't sure how 'random' it might all be

In article <m-35E3F6.15070419032006@news.verizon.net>, ml <m@di.net>
wrote:

> hi
>
>
> i am pondering this again after thinking the odds of being about to put
> a beam up are slim
>
> currently i have a nice dipole CF horiz via a topside sgc , i am happy
> w/it
>
>
> i think i might be able to get a verticle (all bander) up there but then
> i wonder
>
> overall if it would really pay from just a performance point of view
>
> the reviews i see i personally average as some signals would prob come
> in bettter on one and some signals the other 'depending'
>
> but i guess i can't quantify if at the end of the day i'd say wow
> really glad i had that vert or if perhaps having a 2nd antenna would
> really net me only a marginal end of year bunch of extra qso's
>
>
> perhaps a unrelated question #2
>
> given the building master tv antenna is close by, would one guess that a
> verticle or a small triband beam would give off more tvi??
>
>
> assume both would be slightly higher than the tv ant but close proximity
>
> thanks

3120. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 10:32:16 UTC
From: richardharrison@webtv.net
Message-ID: <2813-441E84B0-2247@storefull-3257.bay.webtv.net>
Source record: 62682

Bob Miller was quoting the originaql questioner.

Bob recommended "Better Shortwave Reception" by William Orr.

Good advice, and the "Radio Handbook" recently published by Howard Sams
and edited by William Orr is a good source of elementary theory too.

Best regards, Richard Harrison, KB5WZI

3121. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 10:34:51 UTC
From: w8ji@akorn.net
Message-ID: <1142850891.475736.293910@v46g2000cwv.googlegroups.com>
Source record: 62681

Yuri Blanarovich wrote:
>
> Yea Tom, it all started with ALL coils, it is MY theory and you can ruin MY
> theory.

What is your theory Yuri?

You didn't explain it.

73 Tom

3122. Re: Ink

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 11:59:53 UTC
From: HankG <hank@invalid.com>
Message-ID: <4M-dnWhbLY6rBIPZRVn-tQ@comcast.com>
Source record: 62683
Cross-posted to: rec.ponds,rec.puzzles,rec.puzzles.crosswords,rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

<mshawjr@frontiernet.net> wrote in message
news:F6qTf.1018$tT.243@news01.roc.ny...
> Man I have found this site that has the cheapest ink for any printer.
> You can compare prices and then review the companies on service and
> quality. <http://www.imagraphix.com> Let me know what you think

I think you are a spammer. So far, found in six (of six) NG's.

HankG

3123. Re: Looking for the right connector

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 12:26:36 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <mo7t12p0bao8r391cjqkkl3i8r5j6q30sn@4ax.com>
Source record: 62684

On Mon, 20 Mar 2006 00:20:11 -0600, "Ken Bessler"
<kg0wx@coxNOSPAM.net> wrote:

>
>"Bob Bob" <bob3bob3@cox.net> wrote in message
>news:75r1f3-d8m.ln1@p400bob.personal.cox.net...
>> Hi Ken
>>
>> Yes stay away from RCA and headphone plugs, for exactly the reason you
>> mentioned.
>>
>> I'd recommend SMA plugs and sockets, They are in pretty standard use up
>> to about 12GHz. Make sure you terminate them properly or have some
>> cables made up.
>>
>> I'd also be careful using that thin coax over any kind of distance. The
>> losses will really mount up!
>>
>> Cheers Bob
>
>Thanks for the tips, Bob. I was worried about losses but I downloaded
>the factory data sheet for this coax - for a 500mm run, I'm looking at a
>loss of 0.94db @ 2.4ghz and 1.53db @ 5.1ghz. I tried finding the internal
>connector (U.FL type) but gave up when I saw DigiKey selling a 1000mm
>cable with U.FL connectors installed on both ends. I cut the cable in half.
>The cable looks like good stuff - VERY tiny but well built. $10....
>
>I'll look into SMA connectors - does anyone know if they make a push on
>variant?

http://www.corning.com/CorningGilbert/faqs/microwave/technical_faqs/

We used a lot of these in blind-mate missile applications.

Wes

3124. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 12:39:51 UTC
From: Lisa Simpson <none@none.com>
Message-ID: <roxTf.49562$9I5.20439@tornado.ohiordc.rr.com>
Source record: 62685

Thanx all!

"Richard Harrison" <richardharrison@webtv.net> wrote in message
news:2813-441E84B0-2247@storefull-3257.bay.webtv.net...
> Bob Miller was quoting the originaql questioner.
>
> Bob recommended "Better Shortwave Reception" by William Orr.

Orderd from alibris.com for ~$6.00! Also orderd the ARRL handbook for ~$30
used!
>
> Good advice, and the "Radio Handbook" recently published by Howard Sams
> and edited by William Orr is a good source of elementary theory too.
>
> Best regards, Richard Harrison, KB5WZI
>

3125. Re: Ink

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 13:02:17 UTC
From: Dave Turner <not@dave>
Message-ID: <441ea7aa@quokka.wn.com.au>
Source record: 62686
Cross-posted to: rec.ponds,rec.puzzles,rec.puzzles.crosswords,rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

<mshawjr@frontiernet.net> wrote in message
news:JTwTf.2739$tT.1678@news01.roc.ny...
> Sorry guys. The spam stuff was not my intent.
Yes it was, your header is still the same, and you've now re-spammed every
newsgroup again with your 'apology'. It doesn't get any dumber.

> I have never been on newsgroups before and not sure how to
> work them.
Yet you know how to spam them. Did you also learn to run before you could
walk?

> I hope you guys can forgive a bad choice.
"You go to hell! You go to hell and you die!" - Mr Garrison

3126. SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:12:51 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <n8Odnbf6bInxW4PZRVn-qQ@comcast.com>
Source record: 62687

OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic. I have 50 feet of LMR240 coax running to the basement. I measure SWR at the following frequencies on simplex.

144.2 2.5
145.2 2.4
146.2 2.3
147.2 1.9
147.9 1.7

Can I conclude that the antenna is electrically short for the 2 meter band?

Thanks for any insight, jimbo

3127. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:24:10 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <uOzTf.40407$_S7.5984@newssvr14.news.prodigy.com>
Source record: 62688

Roy Lewallen wrote:
> When the ground was removed and replaced by a wire, the
> transmission line properties of the coil changed dramatically, while the
> C across the coil didn't change significantly.

Moral: The self-resonant frequency of a loading-coil needs to
be measured in the mobile antenna system, no on the bench.

> Yes again, with one slight modification. You'll note from the EZNEC
> models that the current actually increases some as you go up from the
> bottom of the inductor. This is the effect noted by King which is due to
> imperfect coupling between turns. It results in currents at both ends
> being less than at the center.

It results in a deviation away from the perfect cosine envelope
exhibited by a 1/2WL thin-wire dipole. In any case, the delay
through a 75m bugcatcher coil is tens of degrees, not 3 nS.

> If the
> reasons for this aren't obvious, many texts cover it quite well. No
> special "traveling wave" analysis is required.

The self-resonant frequency of that modeled coil is around 9 MHz.
Since the coil is 90 degrees at 9 MHz, it would be ~59 degrees
at 5.9 MHz. Dr. Corum suggests a 15 degree limit at which the
lumped-circuit model needs to be abandoned in favor of the
distributed-network model or Maxwell's equations.
--
73, Cecil http://www.qsl.net/w5dxp

3128. 2.4GHZ TRANSCEIVER PCB 4-LAYER LAYOUT POINTERS AT 25X17MM DIMENSION....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:31:01 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1142868661.753863.118530@g10g2000cwb.googlegroups.com>
Source record: 62689

CAN YOU GIVE ME COMMON PITFALLS MADE BY ENGINEERS IN PCB LAYOUT DESIGN
ON MY APPLICATION IN TERMS OF:
1.GROUND AND POWER PLANES
2.SHARED/NETWORK IMPEDANCE
3.STAR GROUNDS/ISLANDS
4.PARASITICS
5.PROXIMITY OF MY CHIP ANTENNA/SWITCH/AMPLIFIER

THANK YO SO MUCH!

3129. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:32:17 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <5WzTf.40408$_S7.27437@newssvr14.news.prodigy.com>
Source record: 62690

w8ji@akorn.net wrote:
> You keep trying to drag something from a self-resonant helice into a
> loading coil discussion.

My 75m bugcatcher coil is self-resonant around 6.7 MHz so it
meets the minimum requirement for a Tesla coil at 6.7 MHz.
4 MHz is 60% of the Tesla coil self-resonant frequency. The
coil is known to possess a 90 degree delay at 6.7 MHz. That
would make the delay ~60 degrees at 4 MHz. Dr. Corum suggests
a 15 degree limit for the lumped-circuit model.

> The two are nearly at opposite extremes in behavior, but even at that
> the self-resonant helice can be analyzed with standar L/C analysis.

Unfortunately, that's not true. One cannot assume the
presuppositions of one's model without proof. The "standar L/C
analysis " assumes the delay through a coil is zero, i.e.
faster than light. The delay through a self-resonant coil
is known to be 90 degrees. That "standar L/C" model is
invalid at the self-resonant frequency where the coil
is acting like a 1/4WL open-circuit transmission line
stub.
--
73, Cecil http://www.qsl.net/w5dxp

3130. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:36:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <9_zTf.40409$_S7.5341@newssvr14.news.prodigy.com>
Source record: 62691

w8ji@akorn.net wrote:

> Yuri Blanarovich wrote:
>>Cecil explained the various situation
>>depending where the coil is placed within the radiator and at overall
>>antenna curve.
>
> I doubt that. If he explained it in those terms he was missing some
> important points.

> I never claimed uniformly in ALL coils. I set boundaries as to the
> conditions. I can replace that Hustler coil with another coil and ruin
> your theory about standing waves and missing antenna degrees.

Take your 1/4WL electrical antenna and put another 1/4WL bottom
section beneath it. The current "flowing" into the bottom of
the coil will be higher than the current "flowing" out of the
top of the coil. Please explain that.
--
73, Cecil http://www.qsl.net/w5dxp

3131. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:48:52 UTC
From: Gary Schafer <gaschafer@comcast.net>
Message-ID: <qmjt12143asea3dkefhi3v1lpucoh86pbh@4ax.com>
Source record: 62692

On Sun, 19 Mar 2006 22:15:00 -0500, Mike Coslo
<mremovethiscoslo@adelphia.net> wrote:

>ml wrote:
>> hi
>>
>>
>> i am pondering this again after thinking the odds of being about to put
>> a beam up are slim
>>
>> currently i have a nice dipole CF horiz via a topside sgc , i am happy
>> w/it
>>
>>
>> i think i might be able to get a verticle (all bander) up there but then
>> i wonder
>>
>> overall if it would really pay from just a performance point of view
>>
>> the reviews i see i personally average as some signals would prob come
>> in bettter on one and some signals the other 'depending'
>
>And HOW!
> I've been running some experiments comparing the two, and frankly have
>been having some problems simplifying the experiment enough to make good
>sense and be valid at the same time.
>
> Some times the vertical works better, and sometimes the horizontal
>works better. I'm having a heck of a time correlating exactly *why and
>when* (I'm not the only one - some Dutch amateurs got some surprising
>results when they tried to decipher what would be the best antenna to
>use in the PA contest. Some signals predicted to come in Groundwave were
>coming in Skywave, and vice versa - this was covered in a recent QST)
>
> What I have seen from my experiments has led me to believe that the
>answer to "dipole vs Vertical is an emphatic, no question about it one
>answer only - YES!
>
>
> You want both antennas if you can do it. Anyone who declares one or the
>other the winner is simply wrong.
>
> - 73 de Mike KB3EIA -

I did some tests a couple of years ago on 10 meters between vertical and horizontal on an 1800 mile path. It seems that there is quite a bit of rotation in polarity of the signal from minute to minute. I tried right and left hand circular to confirm that it was rotation.

73
Gary K4FMX

3132. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:56:26 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <KgATf.40415$_S7.39349@newssvr14.news.prodigy.com>
Source record: 62694

Richard Harrison wrote:

> Are any famous authors protagonists of that theory?
>
In "Fields and Waves in Modern Radio", Ramo and Whinnery, 2nd edition, there is a section titled: "9-16 The Idealized Helix and Other Slow-Wave Structures". Quoting: "A rough picture would convince one that the wave should follow the *wire* with about the velocity of light, ..."

From the IEEE Dictionary: "slow-wave circuit - A circuit whose phase velocity is much slower than the velocity of light. For example, for suitably chosen helixes the wave can be considered to travel on the *wire* at the velocity of light but the phase velocity is less than the velocity of light by the factor that the pitch is less than the circumference."

a 75m bugcatcher loading coil is a slow wave structure with a velocity factor around 0.017 (calculated and measured).
--
73, Cecil http://www.qsl.net/w5dxp

3133. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 15:56:53 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <ghATf.119$GW3.11@fe11.lga>
Source record: 62693

<w8ji@akorn.net> wrote in message
news:1142850891.475736.293910@v46g2000cwv.googlegroups.com...
>
> Yuri Blanarovich wrote:
>>
>> Yea Tom, it all started with ALL coils, it is MY theory and you can ruin
>> MY
>> theory.
>
> What is your theory Yuri?
> You didn't explain it.
> 73 Tom
>

Nice twist again! (That was sarcasm and take on your comment about ALL coils)

I didn't produce any MY theory. I simply realized that there is something weird (effect) when I burned heatshrink tubing on the bottom of my Hustler 80m coil, W9UCW measured and did experimenting with that and brought to our attention that there is significant difference in the current distribution across the loading coil. W5DXP put some explanations on as far as mechanism of the effect. I give credit where its due, I didn't produce any theory, I simply tried to bring attention to the effect, tried to find explanation and set the record straight for the benefit of hams, who were misled for decades (including myself), provide (with others) correction pointers so we can correctly model antennas and get better, more accurate results. If W7EL can capture the effect and provide tool to model the loading coil (lumped inductance) as what the hairpin of the same inductance does, we have a major improvement in modeling and designing loaded antennas and arrays.

Sooo, we have the effect, we have some measurements to quantify it and we have explanations going back to Dr. Nikola Tesla and we are trying to set the record straight and correct the years of false information in the ham literature, going back to J. Belrose first article in ancient QST.

What you have? Misinformation on your web site and refusing to admit that you could be wrong (again). Not answering technical questions, nitpicking on things to confuse and cloud the issue "proving" that you are right.

Funny how you object to "personal" attacks, when it is the first thing you do when someone posts something that doesn't jive with your understanding of the subject. Been there, you have done it to me few times. Tom, it's not personal attack on YOU, it is correction ("attack") on what you (wrong) say and parade on your web site.

The bottom line is, that you claim that loading antenna coil behaves according to "DC circuit laws" and has the same (or almost) current at both ends. When in reality there is quite a difference (talking about case of say quarter wave loaded radiator). The significance is, that the efficiency of the antenna is proportional to the area under the current distribution curve. If that distribution is portrayed wrongly (not showing, calculating drop of current across the coil) then we get false results, which will be magnified in multielement loaded array.
So you can keep up the mumbo-jumbo and cloud the issue all you want, reality is there and won't go away.

One more experiment that "scientwists" can do: Stick some neon bulbs at the bottom and top of the coil with equal "tail", or just move the neon bulb along the coil whil holding in your hand. I bet you would see that there is noticeable difference in brightness from top to bottom, top being brighter, meaning higher voltage. We know (not mine theory) that if voltage is higher then the current has to be lower, meaning that current at the bottom of the coil is higher than on the top. Meaning that it is not EQUAL as W8JI is insisting on. Nice science project for a 7th grader kid of a ham. (To avoid mumbo-jumbo detours - we are talking say 80m mobile Hustler or similar quarter wave antenna at resonant frequency). No need for phasors, distributed this or that, inside or outside of the coil wire and other "clouds".

Can you answer questions that are posted, instead of sidestepping them and nitpicking on unrelated stuff? That's just MY theory, I may be wrong, and I would admit it, if I am shown the right.

So can you ANSWER Cecil's question?
Where did you get the engineering degree and usage of "JI Engineering"?

Yuri, www.K3BU.us

3134. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 16:00:50 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <SkATf.40416$_S7.5017@newssvr14.news.prodigy.com>
Source record: 62695

jimbo wrote:

> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
> I have 50 feet of LMR240 coax running to the basement. I measure SWR at
> the following frequencies on simplex.
>
> 144.2 2.5
> 145.2 2.4
> 146.2 2.3
> 147.2 1.9
> 147.9 1.7
>
> Can I conclude that the antenna is electrically short for the 2 meter band?

That's what I would conclude from the data given. Wind some
wire around the tip top and extend the antenna by a few
inches. Then repeat your SWR measurements.
--
73, Cecil http://www.qsl.net/w5dxp

3135. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 16:08:54 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <ssATf.127$GW3.102@fe11.lga>
Source record: 62696

"ml" <m@di.net> wrote

> but don't forget, we all agree that somtimes the dipole will work better
> sometimes the vert but the realy trick i wonder about is how many times
> will the vert be useful
>
> my guess is prob 50/50 but wasn't sure how 'random' it might all be
>

To understand the benefits of vertical vs. dipole, one has to look at the radiation diagram of each antenna at particular height. Vertical has the lobes, where horizontal dipole has the nulls and vice versa. The other aspect is the polarization which plays bigger role in close range signals, long range DX signals have varying polarization after they go through the path. Then there are varying angles of arriving signal depending on propagation media.
Another spect is that Vertical has omnidirectional pattern, while dipole has nulls in the pattern (off the ends).

Depends how the antenna pattern and properties fit the current propagation mode/situation, that antenna would be better. So one has to look at the antenna pattern and have idea what propagation angles and polarization we are looking for. Verticals need good ground/soil/radials/salt water for better low angle performance.

The answer to which is better: vertical or dipole is - YES, jus' depends wasaaaap (or down)!

Yuri, www.K3BU.us

3136. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 16:27:31 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <TJATf.61813$dW3.27829@newssvr21.news.prodigy.com>
Source record: 62697

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:SkATf.40416$_S7.5017@newssvr14.news.prodigy.com...
> jimbo wrote:
>
>> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
>> I have 50 feet of LMR240 coax running to the basement. I measure SWR at
>> the following frequencies on simplex.
>>
>> 144.2 2.5
>> 145.2 2.4
>> 146.2 2.3
>> 147.2 1.9
>> 147.9 1.7
>>
>> Can I conclude that the antenna is electrically short for the 2 meter
>> band?
>
> That's what I would conclude from the data given. Wind some
> wire around the tip top and extend the antenna by a few
> inches. Then repeat your SWR measurements.
> --
> 73, Cecil

One might also try adjusting the feed point location and see what effect
that has.

Harold
KD5SAK

3137. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 16:41:31 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <%WATf.40428$_S7.20585@newssvr14.news.prodigy.com>
Source record: 62698

kd5sak wrote:
> "Cecil Moore" <mycall@hotmail.com> wrote in message
>>Wind some
>>wire around the tip top and extend the antenna by a few
>>inches. Then repeat your SWR measurements.
>
> One might also try adjusting the feed point location and see what effect
> that has.

That would be good to do after adjusting the length.
--
73, Cecil http://www.qsl.net/w5dxp

3138. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 16:48:02 UTC
From: Dan Richardson <k6mhe>
Message-ID: <s5nt12pqqkuus0figlioof6r41d8u70hpg@4ax.com>
Source record: 62699

On Mon, 20 Mar 2006 08:12:51 -0700, jimbo <jimbo62@spamex.com> wrote:

>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>attic. I have 50 feet of LMR240 coax running to the basement. I
>measure SWR at the following frequencies on simplex.
>
>144.2 2.5
>145.2 2.4
>146.2 2.3
>147.2 1.9
>147.9 1.7
>
>Can I conclude that the antenna is electrically short for the 2 meter
>band?
>

Have you a common mode choke on the feedline? J-poles are nortorious
for feedline common mode problems.

Danny, K6MHE

3139. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:17:34 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvmo3esu1@nwrdmz03.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62700

Yuri, why not try program LOADCOIL.

Its just what you've been waiting for.

Download from website below.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

3140. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:26:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <nBBTf.3275$tN3.2823@newssvr27.news.prodigy.net>
Source record: 62701

w8ji@akorn.net wrote:
> 1.) I can build an antenna that has greatly uneven currents at the ends
> of the loading coil, but the antenna rea above the inductor is wasted
> and the system will be less efficient than a properly designed system.

Anyone with EZNEC can answer the question for himself.
For the following EZ files, the currents at the bottom and
top of the coil are viewed by clicking on the "Load Dat"
button. Load 1 is at the bottom of the coil and Load 2
is at the top of the coil. The loads are both zero so
they have no effect on the antenna system and are used
only to report the current at that point.

I previously modeled a bottom-loaded 5.89 MHz mobile
antenna. That EZNEC file is available at:

http://www.qsl.net/w5dxp/test316.EZ

Taking that antenna and *changing nothing* except adding
1/4WL of wire to the top of the whip, yields the EZNEC
file at:

http://www.qsl.net/w5dxp/test316c.EZ

The antenna has been changed from a base-loaded 1/4WL
antenna to a base-loaded 1/2WL antenna using the same
coil in the same relative position to the source and
ground. The changes in the currents through the coil
are obvious.

The frequency was not changed so the coil occupies the
same percentage wavelength of the antenna in both examples.
In the first example, we have 1.01 amps at the bottom of
the coil and 0.6984 amps at the top of the coil. That's
fairly typical for mobile antennas at the 5.89 MHz
frequency and agrees with the measurements presented
so far.

Now, changing nothing except the whip length by adding
40 feet (1/4WL) of whip, in the second example we have
1.239 amps at the bottom of the coil and 2.068 amps at
the top of the coil. How does the lumped-circuit model
explain that one? More current "flowing" into the coil
than is "flowing" out of the coil just by adding 40'
of wire to the top of the antenna?

The coil occupies the same electrical length in both examples because they are at the same frequency. The current through the coil depends upon where it is physically installed relative to the standing waves existing at the point of installation.

Using what EZNEC tells us about the self-resonant frequency near 9 MHz, we can calculate the delay through the coil as ~59 degrees. Thus the coil occupies ~0.16 wavelength. (The wire used to wind the coil is ~0.24 wavelength if stretched out straight.) Nobody said it was a 1:1 replacement but someone said it was *NOT* a replacement at all.

I would encourage the experimenters to add 1/4WL of whip to their previously measured mobile antenna systems and make additional measurement. That is, of course, after matching the source to the new impedance. Please report the results here.
--
73, Cecil http://www.qsl.net/w5dxp

3141. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:31:08 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dvmot3$1nle$1@f04n12.cac.psu.edu>
Source record: 62702

Old Ed wrote:
> Reg,
>
> The type of antenna you describe is very useful and popular.
>
> However, your assertion is much too sweeping as a generalization.
> In no particular order, here are some caveats:
> 1. The qualifier "best" is largely meaningless, absent an agreed
> set of weighted criteria for "goodness." (How important is:
> size? weight? cost? visual profile? bandwidth? instant QSY?
> gain? pattern? low-band performance vs. high-band performance?
> power-handling capacity? need for tuner? etc., etc., etc.)

I'm always hesitant to use words like "best" for all the reasons you state, but I think that Reg qualified things pretty well. Within the qualifications of all band dipoles, the ladder-line fed general dipole is pretty darn hard to beat. I recommend them to any new hams that ask me for advice on antennas.

My rationale is that most new hams these days buy rigs that are all-band, transistorized units.These units are also sensitive to mismatches between antenna and rig. Most new hams are not antenna gurus either. So here is an antenna that will allow them to get on the air without a lot of fussing. The only real measurement caveats are some lengths that you don't want to use.

So we end up with an antenna that allows the newbie to get on the air, allows them to learn some stuff by twiddling knobs and such, then when they have a bit more experience, they can tackle that more "advanced antenna" with it's more exacting design, trimming , and measurements.

> 2. A good case can be made that choosing the "right" length is
> "better" than a random length, within this type.
> 3. An excellent case can be made that center-fed is NOT always
> the "best" option, within this type.
> 4. I'll let the fans of this antenna type chime in with why they
> prefer balanced tuners and/or tuned feeders to the use of an
> unbalanced tuner... if they want to. (I use more tailored antennas,
> and don't need a tuner of any kind, most of the time.)

As I do now. I've really been smitten with my OCF dipole, fed with Coax, because in no small part, the feedpoint drops straight down to my shack. That coupled with an automatic tuner in my radio , allowing me to "plug and play.

But I still strongly urge newcomers to put up one of those ladder line
dipoles for the experience. They work okay, too! 8^)

>
> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
> news:dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
>> The best, all round, all band, antenna is a high centre-fed dipole of
>> no particular length, fed with an open-wire feedline of no particular
>> length or impedance, all the way to the shack, used with a choke-balun
>> and an unbalanced tuner.
>>
>> It is good down to the frequency at which the dipole is about
>> 1/3-wavelength long.
>>
>> Simplicity = efficiency.
>>
>> Once tried you will never return to anything else.
>> ----
>> Reg.
>>
>>
>
>

3142. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:34:11 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvmp2jsgm1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62703

Cec, who the heck is Dr Corum?

Is he yet another Bible writer?

Nobody's ever heard of him.

What makes you think he is right?

Is it just because you think he agrees with YOU?

And you may have taken him out of context and misquoted him anyway.

Reg.

3143. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:40:38 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dvmpel$1fn6$1@f04n12.cac.psu.edu>
Source record: 62704

Owen Duffy wrote:
> On Sun, 19 Mar 2006 22:15:00 -0500, Mike Coslo
> <mremovethiscoslo@adelphia.net> wrote:
>
>
>> Some times the vertical works better, and sometimes the horizontal
>> works better. I'm having a heck of a time correlating exactly *why and
>
> Mike, we need a clear definition of the meaning of "works" in your
> data gathering and analysis.

Yeah! I'm trying to come up with a good test protocol that will allow me to define "work".

So far, I can note that some signals drop into the noise and become unreadable, while are readable on the other at the same time. That seems a bit simplistic though.

My main problem is the variable signal levels., and the also variable noise levels. Turns out that the antenna that was noisier on one band is quieter on another, and vice versa.

A fellow could come to the conclusion that "this ain't exactly easy". HA!

- 73 de Mike KB3EIA -

3144. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:42:12 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvmphkqjh1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62705

Everybody quotes from Bibles.

Which reduces the authors to the same standard of conversation as transpires on this newsgroup.

Has nobody any confidence in what he is saying and feels in need of support from the angeles.

3145. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:49:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <TWBTf.3284$tN3.132@newssvr27.news.prodigy.net>
Source record: 62706

Reg Edwards wrote:

> Cec, who the heck is Dr Corum? Nobody's ever heard of him.

Reg, in Mexico, it's known as a "Tequila Sunrise".
In your case, it must be a "Chardoney Sunrise". :-)

If you've never heard of him, it's your own fault.

http://www.ttr.com/corum/index.htm

http://www.ttr.com/TELSIKS2001-MASTER-1.pdf

- URLs posted here a number of times. Do a web search
to understand his far-reaching influence in matters
of a technical nature.

> What makes you think he is right?

He makes sense and his equations agree with my rough
measurements within 14%. I suspect my measurements
are off by at lease 10%.
--
73, Cecil http://www.qsl.net/w5dxp

3146. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 17:52:29 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <xZBTf.3286$tN3.482@newssvr27.news.prodigy.net>
Source record: 62707

Reg Edwards wrote:
> Has nobody any confidence in what he is saying and feels in need of
> support from the angeles.

"angeles"? Resorting to Spanish is no help. The present
question is, "can EZNEC be trusted"? We already know
your opinion. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3147. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 18:05:33 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvmqtdop1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62708

Jimbo,

The most likely source of variation is inaccuracy of your SWR meter.
It doesn't measure SWR on the feedline anyway.

The questions you should ask is does it work? And is the transmitter
roughly loaded with the right load impedance?

Reg

3148. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 18:24:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvms06$3qc$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62709

"Cecil Moore" wrote
> Reg Edwards wrote:
> > Has nobody any confidence in what he is saying and feels in need
of
> > support from the angeles.
>
> "angeles"? Resorting to Spanish is no help. The present
> question is, "can EZNEC be trusted"? We already know
> your opinion. :-)
==

Dear Cec,

- - - and what is my opinon which everybody is supposed to know?
C'mon then. Be truthful. Out with it!

Reg.

3149. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 19:14:28 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <oaDTf.56361$H71.39242@newssvr13.news.prodigy.com>
Source record: 62710

Reg Edwards wrote:
> - - - and what is my opinon which everybody is supposed to know?
> C'mon then. Be truthful. Out with it!

Your opinion of EZNEC is recorded for posterity on Google.
Who am I to embellish it?
--
73, Cecil http://www.qsl.net/w5dxp

3150. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 19:18:29 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <9eDTf.56363$H71.25315@newssvr13.news.prodigy.com>
Source record: 62711

Cecil Moore wrote:

> w8ji@akorn.net wrote:
>> 1.) I can build an antenna that has greatly uneven currents at the ends
>> of the loading coil, but the antenna rea above the inductor is wasted
>> and the system will be less efficient than a properly designed system.
>
> Anyone with EZNEC can answer the question for himself.

In accordance with my policy of correcting my mistakes
using the scientific method and updating my presentations
to have the most impact, I have revised the bottom of the
web page at http://www.qsl.net/w5dxp/current.htm

Can there be any question about the lumped-circuit model
failing in a standing wave environment after viewing that
information?
--
73, Cecil http://www.qsl.net/w5dxp

3151. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 19:27:42 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jd0u12h22p14jn0el8um2k5m3b1pcm5um1@4ax.com>
Source record: 62712

On Mon, 20 Mar 2006 17:52:29 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>The present question is, "can EZNEC be trusted"?
This repugnant "question" borders on, and crosses into ignorance for
the sake of arguing.

3152. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 19:32:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121u0posj1cgt85@corp.supernews.com>
Source record: 62713

Michael Coslo wrote:
>
> Yeah! I'm trying to come up with a good test protocol that will
> allow me to define "work".
>
> So far, I can note that some signals drop into the noise and become
> unreadable, while are readable on the other at the same time. That seems
> a bit simplistic though.
>
> My main problem is the variable signal levels., and the also
> variable noise levels. Turns out that the antenna that was noisier on
> one band is quieter on another, and vice versa.
>
> A fellow could come to the conclusion that "this ain't exactly
> easy". HA!

It isn't.

The best antenna for transmitting is the one which produces the loudest signal at the other station. The best antenna for receiving is the one which produces the best signal/noise ratio at your station. The two are often different, because they're determined by different antenna characteristics. So for starters, you can have two "best" antennas for each station you want to contact, and that "best" will vary with the skip elevation angle, local noise level, and directions and angles the noise is coming from.

Have fun!

Roy Lewallen, W7EL

3153. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 19:35:40 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <guDTf.56374$H71.26288@newssvr13.news.prodigy.com>
Source record: 62714

Richard Clark wrote:

> Cecil Moore <mycall@hotmail.com> wrote:
>>The present question is, "can EZNEC be trusted"?
>
> This repugnant "question" borders on, and crosses into ignorance for
> the sake of arguing.

It was a rhetorical question, Richard. If the creator of EZNEC
disagrees with his own creation, what does that imply?
--
73, Cecil http://www.qsl.net/w5dxp

3154. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 20:00:56 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121u2fs34bn1he1@corp.supernews.com>
Source record: 62715

Richard Clark wrote:
> On Mon, 20 Mar 2006 17:52:29 GMT, Cecil Moore <mycall@hotmail.com>
> wrote:
>> The present question is, "can EZNEC be trusted"?
> This repugnant "question" borders on, and crosses into ignorance for
> the sake of arguing.

Hm. Cecil was quick to hold up EZNEC results as evidence when they seemed to support his theory. He must have come across a situation where they didn't.

EZNEC can indeed be trusted. There are of course some cases where the underlying NEC calculating engines have limitations or run into numerical trouble, but those are quite well known and documented. So far, the models and EZNEC results I've seen here -- from Cecil's models and from the modified model I made -- are easily within EZNEC's capabilities and agree with known theory. This shouldn't be a surprise to anyone. If they disagree with some alternate theory, the alternate theory is faulty.

Promoters of antennas with magical properties often say that their antenna can't be modeled because the modeling programs don't "take into account" whatever magical effect they've dreamed up to justify their impossible claims. That's their way of trying to explain why modeling programs show their claims to be false. I detect the same phenomenon happening here.

EZNEC and NEC are being used daily by hundreds or thousands of companies, government agencies, military groups, and universities to aid in designing antennas that work, and NEC has been in use for nearly 30 years now. We make use of them daily. EZNEC is indeed trusted, by some of the biggest and most sophisticated aerospace companies and government agencies.

If anyone ever sees a significant difference between EZNEC and NEC results, please let me know so I can track down the reason.

Roy Lewallen, W7EL

3155. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 20:10:27 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <2u2u12lu12sqdrb8mkeev8j9on8otchotk@4ax.com>
Source record: 62716

On Mon, 20 Mar 2006 19:35:40 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>> Cecil Moore <mycall@hotmail.com> wrote:
>>>The present question is, "can EZNEC be trusted"?
>>
>> This repugnant "question" borders on, and crosses into ignorance for
>> the sake of arguing.
>
>It was a rhetorical question

This prelude to more ignorance reveals moral equivocation.

3156. Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 20:14:20 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1142885660.257565.164800@i40g2000cwc.googlegroups.com>
Source record: 62717

Hello and greetings all,

I borrowed a field strength measurement equipment from the school lab.
I wanted to measure the the field strength of a low power FM
transmitter. I was told that I need to setup the antenna height
correctly. I didn't think of this. I thought all I need is the proper
antenna length and polarization for measurement. Can anyone give me
some insight regarding using the proper antenna height? Thank you.

3157. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 20:37:26 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <KKOdnXe3W_4ej4LZnZ2dnUVZ_tudnZ2d@comcast.com>
Source record: 62718

In your set up the VSWR tells you very little!!

That 50 feet of LMR240 is modifying the actual VSWR as seen at your meter. It is not telling you the VSWR at the feed point.

First, the antenna should have a balanced feed. With coax you need a 1/2 wavelength [coax corrected for velocity factor] matching stub to keep the line balanced. This will minimized coupling antenna current on the outside of the coax cable.

Second, you should measure the antenna feed point impedance at the feedpoint, or 1/2 wavelength from the feed point [coax corrected for velocity factor].

Third, adjust the feedpoint location to get 50 + j0 ohms on your preferred frequency using an antenna analyzer [one or more members of your radio club should have one].

I'm located in southern NH, USA and if you are reasonably close I can assist in tuning your antenna.

DD

jimbo wrote:

> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
> I have 50 feet of LMR240 coax running to the basement. I measure SWR at
> the following frequencies on simplex.
>
> 144.2 2.5
> 145.2 2.4
> 146.2 2.3
> 147.2 1.9
> 147.9 1.7
>
> Can I conclude that the antenna is electrically short for the 2 meter band?
>
> Thanks for any insight, jimbo

3158. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 20:43:37 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvn45prjs1@nwrdmz02.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62719

"Cecil Moore" wrote
> Your opinion of EZNEC is recorded for posterity on Google.
> Who am I to embellish it?
==========
Cecil, as usual you are being hopelessly evasive.

Reg.

3159. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:04:32 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ANETf.48887$F_3.45164@newssvr29.news.prodigy.net>
Source record: 62720

Roy Lewallen wrote:
> Richard Clark wrote:
>
>> Cecil Moore <mycall@hotmail.com> wrote:
>>> The present question is, "can EZNEC be trusted"?
>>
>> This repugnant "question" borders on, and crosses into ignorance for
>> the sake of arguing.
>
> Hm. Cecil was quick to hold up EZNEC results as evidence when they
> seemed to support his theory. He must have come across a situation where
> they didn't.

On the contrary, Roy, it was a ***rhetorical*** question to
which Richard kindly responded. It is you who are disagreeing
with the EZNEC results, which are your own creation. I fully
agree with the EZNEC results posted below. So are you or EZNEC
correct? Both you and EZNEC be correct. Please see:

http://www.qsl.net/w5dxp/current.htm and scroll down to the bottom.

> EZNEC can indeed be trusted.

Glad to hear you say that, Roy. Does that imply that you cannot
be trusted? (Another rhetorical question) Reckon why the EZENC
results disagree with your personal postings on this newsgroup?
--
73, Cecil http://www.qsl.net/w5dxp

3160. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:07:16 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <8QETf.48890$F_3.7390@newssvr29.news.prodigy.net>
Source record: 62721

Richard Clark wrote:
> This prelude to more ignorance reveals moral equivocation.

Actually, your naivite' in following me down the primrose
path is enlightening.
--
73, Cecil http://www.qsl.net/w5dxp

3161. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:10:42 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <mTETf.48893$F_3.15589@newssvr29.news.prodigy.net>
Source record: 62722

Reg Edwards wrote:

> "Cecil Moore" wrote
>>Your opinion of EZNEC is recorded for posterity on Google.
>>Who am I to embellish it?
>
> Cecil, as usual you are being hopelessly evasive.

I could waste my time Googling your opinion of EZNEC
but why should I waste my valuable time doing that?
--
73, Cecil http://www.qsl.net/w5dxp

3162. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:27:33 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <ej6u125u2em7o60kmt8l0agiumhjqute9j@4ax.com>
Source record: 62723

On Mon, 20 Mar 2006 15:37:26 -0500, Dave <W1MCE@comcast.net> wrote:

>In your set up the VSWR tells you very little!!
>
>That 50 feet of LMR240 is modifying the actual VSWR as seen at your
>meter. It is not telling you the VSWR at the feed point.

The matched line loss of 50' LMR240 at 146MHz is 1.5dB.

Jimbo tells us the source end VSWR at 146.2 is 2.3. One can make a reasonable estimate that the VSWR at the antenna end of the line is 3.5 (not a very good match for an antenna that should use an adjustable matching system). Total line loss is around 2.3dB, or about 0.9dB worse than matched line loss.

Now look at the tx output power, has it decreased because of the bad load. Add that reduction (in dB) to the 0.9% above to get the overall degradation of transmit perfomance.

A question: Is the proximity of other structures or feedline isolation a cause of the high VSWR, and should you resolve that before tweaking the matching?

Owen
--

3163. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:31:02 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <pf7u12tlpim7btusoklcf3tdnndd0vv0p3@4ax.com>
Source record: 62724

On Mon, 20 Mar 2006 15:37:26 -0500, Dave <W1MCE@comcast.net> wrote:

>In your set up the VSWR tells you very little!!
>
>That 50 feet of LMR240 is modifying the actual VSWR as seen at your
>meter. It is not telling you the VSWR at the feed point.
>
>First, the antenna should have a balanced feed. With coax you need a 1/2
>wavelength [coax corrected for velocity factor] matching stub to keep
>the line balanced. This will minimized coupling antenna current on the
>outside of the coax cable.
>
>Second, you should measure the antenna feed point impedance at the
>feedpoint, or 1/2 wavelength from the feed point [coax corrected for
>velocity factor].

I'm confused, wouldn't it be more important to have the right
impedance and swr at the end of the feedline, where the transceiver is
expecting 50 ohms?

bob
k5qwg

>
>Third, adjust the feedpoint location to get 50 + j0 ohms on your
>preferred frequency using an antenna analyzer [one or more members of
>your radio club should have one].
>
>I'm located in southern NH, USA and if you are reasonably close I can
>assist in tuning your antenna.
>
>DD
>
>jimbo wrote:
>
>> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
>> I have 50 feet of LMR240 coax running to the basement. I measure SWR at
>> the following frequencies on simplex.
>>
>> 144.2 2.5
>> 145.2 2.4
>> 146.2 2.3
>> 147.2 1.9
>> 147.9 1.7
>>

>> Can I conclude that the antenna is electrically short for the 2 meter band?
>>
>> Thanks for any insight, jimbo

3164. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:35:48 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <3f7u12l4b75i5ne21vcq3at51f00m97qoo@4ax.com>
Source record: 62725

On Mon, 20 Mar 2006 11:32:05 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>> A fellow could come to the conclusion that "this ain't exactly
>> easy". HA!
>
>It isn't.
>
>The best antenna for transmitting is the one which produces the loudest
>signal at the other station. The best antenna for receiving is the one
>which produces the best signal/noise ratio at your station. The two are
>often different, because they're determined by different antenna
>characteristics. So for starters, you can have two "best" antennas for
>each station you want to contact, and that "best" will vary with the
>skip elevation angle, local noise level, and directions and angles the
>noise is coming from.
>

Just was I was thinking when I prompted the "works" definition.

I should not be surprised if many observations indicate the better
antenna for tx is different from the better antenna for rx. I am not
trying to question reciprocity, but there are several factors, ambient
noise at the rx site probably being the most significant.

Key thing is, works is not adequately defined by making one or a few
DX QSOs!.

Mike, perhaps you need to formalise your "works" criteria with your
current experience, identifying what you need to record, before making
too many more observations.

I agree with Roy, for each antenna, rx main figure of merit S/N
(crudely S units between ambient noise and signal), and on tx, the
other stations observed S meter reading. (Whole log of issues there...
but a rough start supported by the current RST reporting scheme.)

Owen
--

3165. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:43:42 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <bv7u1297f4e7mdr95q5b86q2vcm2gc69pg@4ax.com>
Source record: 62626

On Mon, 20 Mar 2006 21:31:02 GMT, Bob Miller <NOSPAM@neosoft.com>
wrote:

>>Second, you should measure the antenna feed point impedance at the
>>feedpoint, or 1/2 wavelength from the feed point [coax corrected for
>>velocity factor].
>

Why the half wavelength?

The VSWR in this situation varies smoothly from the value at the feed
point to the value at the source end of the line as dictated by the
(known) line loss.

In this scenario, knowing matched line loss and the VSWR at a point,
it is possible to estimate the VSWR anywhere else on the line (as I
have done in another post).

>I'm confused, wouldn't it be more important to have the right
>impedance and swr at the end of the feedline, where the transceiver is
>expecting 50 ohms?

There are two objectives:
1. delivering the transmitter its rated load impedance (so that it
safely delivers its rated power);
2. minimising line loss.

1. is achieved by a load approximately 50 ohms at the souce end of the
line.

2. is achieved by a load approximately 50 ohms at the load end of the
line (which will also satisfy 1.).

Owen
--

3166. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 21:57:46 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <hPKdnViNHbvPuILZRVn-gg@comcast.com>
Source record: 62627

Cecil Moore wrote:
> jimbo wrote:
>
>> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>> attic. I have 50 feet of LMR240 coax running to the basement. I
>> measure SWR at the following frequencies on simplex.
>>
>> 144.2 2.5
>> 145.2 2.4
>> 146.2 2.3
>> 147.2 1.9
>> 147.9 1.7
>>
>> Can I conclude that the antenna is electrically short for the 2 meter
>> band?
>
>
> That's what I would conclude from the data given. Wind some
> wire around the tip top and extend the antenna by a few
> inches. Then repeat your SWR measurements.

I am not sure what you mean by "wrap some wire around the tip top." I could splice some wire on the long leg of the ladder line?

3167. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:00:56 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <hPKdnVuNHbuMu4LZRVn-gg@comcast.com>
Source record: 62628

kd5sak wrote:
> "Cecil Moore" <mycall@hotmail.com> wrote in message
> news:SkATf.40416$_S7.5017@newssvr14.news.prodigy.com...
>
>>jimbo wrote:
>>
>>
>>>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
>>>I have 50 feet of LMR240 coax running to the basement. I measure SWR at
>>>the following frequencies on simplex.
>>>
>>>144.2 2.5
>>>145.2 2.4
>>>146.2 2.3
>>>147.2 1.9
>>>147.9 1.7
>>>
>>>Can I conclude that the antenna is electrically short for the 2 meter
>>>band?
>>
>>That's what I would conclude from the data given. Wind some
>>wire around the tip top and extend the antenna by a few
>>inches. Then repeat your SWR measurements.
>>--
>>73, Cecil
>
>
> One might also try adjusting the feed point location and see what effect
> that has.
>
> Harold
> KD5SAK
>
>

I have done that on a j-pole that I made, but that antenna was in my
shack, where it was accessible. This antenna is in a third floor attic
where I have to wriggle my feet through 14 inches of insulation to
find a rafter to stand on. Not conducive to much tweaking.

Thanks, jimbo

3168. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:01:53 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <hPKdnVqNHbvUu4LZRVn-gg@comcast.com>
Source record: 62629

Dan Richardson <k6mhe<at>adelphia wrote:
> On Mon, 20 Mar 2006 08:12:51 -0700, jimbo <jimbo62@spamex.com> wrote:
>
>
>>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>>attic. I have 50 feet of LMR240 coax running to the basement. I
>>measure SWR at the following frequencies on simplex.
>>
>>144.2 2.5
>>145.2 2.4
>>146.2 2.3
>>147.2 1.9
>>147.9 1.7
>>
>>Can I conclude that the antenna is electrically short for the 2 meter
>>band?
>>
>
>
> Have you a common mode choke on the feedline? J-poles are nortorious
> for feedline common mode problems.
>
> Danny, K6MHE
>

Maybe a 4-5 loop coil of coax close to the feed point?

Thanks, jimbo

3169. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:08:47 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <yZOdnZUtoLx6uoLZnZ2dnUVZ_tydnZ2d@comcast.com>
Source record: 62630

Dave wrote:
> In your set up the VSWR tells you very little!!
>
> That 50 feet of LMR240 is modifying the actual VSWR as seen at your
> meter. It is not telling you the VSWR at the feed point.
>
> First, the antenna should have a balanced feed. With coax you need a 1/2
> wavelength [coax corrected for velocity factor] matching stub to keep
> the line balanced. This will minimized coupling antenna current on the
> outside of the coax cable.
>
> Second, you should measure the antenna feed point impedance at the
> feedpoint, or 1/2 wavelength from the feed point [coax corrected for
> velocity factor].
>
> Third, adjust the feedpoint location to get 50 + j0 ohms on your
> preferred frequency using an antenna analyzer [one or more members of
> your radio club should have one].
>
> I'm located in southern NH, USA and if you are reasonably close I can
> assist in tuning your antenna.
>
> DD
>
> jimbo wrote:
>
>> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>> attic. I have 50 feet of LMR240 coax running to the basement. I
>> measure SWR at the following frequencies on simplex.
>>
>> 144.2 2.5
>> 145.2 2.4
>> 146.2 2.3
>> 147.2 1.9
>> 147.9 1.7
>>
>> Can I conclude that the antenna is electrically short for the 2 meter
>> band?
>>
>> Thanks for any insight, jimbo
>
>

Well, Utah is a little too far away for your offer of help. But, why shouldn't I measure SWR at the transmitter? Doesn't a SWR of 1.0 at the transmitter indicate 50 + j0 ohms which is what the transmitter wants?

Thanks, jimbo

3170. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:23:54 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <_XFTf.45503$2O6.22847@newssvr12.news.prodigy.com>
Source record: 62631

jimbo wrote:
> I am not sure what you mean by "wrap some wire around the tip top." I
> could splice some wire on the long leg of the ladder line?

The antenna appears to be too short. Lengthen the antenna,
normally accomplished at the tip top.
--
73, Cecil http://www.qsl.net/w5dxp

3171. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:25:36 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jtau12loidtj8vmmlcss9iojrs4tv40a93@4ax.com>
Source record: 62632

On Mon, 20 Mar 2006 21:04:32 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Does that imply that you cannot
>be trusted? (Another rhetorical question)

Even rhetorical questions cannot cloak their repugnant character.

3172. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:46:29 UTC
From: Dan Richardson <k6mhe>
Message-ID: <54cu12t6vohn4d8i6rgoemh12af47apeoo@4ax.com>
Source record: 62633

On Mon, 20 Mar 2006 15:01:53 -0700, jimbo <jimbo62@spamex.com> wrote:

>Dan Richardson <k6mhe<at>adelphia wrote:

>> Have you a common mode choke on the feedline? J-poles are nortorious
>> for feedline common mode problems.
>>
>> Danny, K6MHE
>>
>
>Maybe a 4-5 loop coil of coax close to the feed point?
>
>Thanks, jimbo

Yes, that would help.

Danny

3173. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:51:28 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <d5SdnX2aEp5trILZnZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 62634

Bob Miller wrote:

SNIPPED
>
> I'm confused, wouldn't it be more important to have the right
> impedance and swr at the end of the feedline, where the transceiver is
> expecting 50 ohms?
>
> bob
> k5qwg
>

SNIPPED

If you have 50 ohms at the antenna, then you will have 50 ohms
regardless of the length of coax.

A 3:1 VSWR, assuming other responses to this post are correct, means
that your antenna connection could be anything from 16 ohms to 150 ohms
and all sorts of combinations of resistance and reactance within that range.

An antenna analyzer will let you determine antenna resonance, antenna
feedpoint impedance [hopefully 50 ohms], coax line loss, and allow
proper adjustment at the connection points for your coax.

Once again, find someone in your area with an antenna analyzer. I repeat
my offer if you are within 60 +/- miles of Concord NH.

3174. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 22:54:19 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <d5SdnXyaEp4Gr4LZnZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 62635

Owen Duffy wrote:

> On Mon, 20 Mar 2006 21:31:02 GMT, Bob Miller <NOSPAM@neosoft.com>
> wrote:
>
>
>
>>>Second, you should measure the antenna feed point impedance at the
>>>feedpoint, or 1/2 wavelength from the feed point [coax corrected for
>>>velocity factor].
>>
>
> Why the half wavelength?
>
>

A 1/2 wavelength transmission line repeats the load impedance at the antenna with minimum loss, assuming you cannot get an analyzer at the antenna itself.

IMO, measuring directly at the antenna and solving the matching/load problem there is the easiest and best method. You are free to disagree.

3175. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:02:09 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <bMudncxZKaHsqYLZRVn-pA@comcast.com>
Source record: 62636

jimbo wrote:

SNIPPED
>>
>
> Well, Utah is a little too far away for your offer of help. But, why
> shouldn't I measure SWR at the transmitter? Doesn't a SWR of 1.0 at the
> transmitter indicate 50 + j0 ohms which is what the transmitter wants?
>
> Thanks, jimbo

It IS what the transmitter wants! But you may be introducing
un-necessary power losses in your coax from any true VSWR > 1:1.

It is possible to have a VSWR > 25:1 at the antenna and still have close
to 1:1 at the transmitter! REALLY !! Your transmitter is happy. But you
are wasting power heating the coax, not radiating it at the antenna!
This is caused by impedance transformation along the coax. VSWR ~ 1:1 at
the antenna provides best power transfer from coax to antenna.

BTW, I used to live in Kaysville and Layton [ZIP=85015] in the olden
days [30+ years ago]

3176. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:10:15 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <rDGTf.3397$tN3.2760@newssvr27.news.prodigy.net>
Source record: 62637

Richard Clark wrote:

> Cecil Moore <mycall@hotmail.com> wrote:
>>Does that imply that you cannot
>>be trusted? (Another rhetorical question)
>
> Even rhetorical questions cannot cloak their repugnant character.

Certainly, no repugnance or disrespect intended. Roy is presently
in the unenviable position of agreeing with (EZNEC and me) or
disagreeing with (EZNEC and me). Hint: rhetorical questions
require no answer.
--
73, Cecil http://www.qsl.net/w5dxp

3177. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:18:10 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <6mdu12te5gkm3kraf4pkvkehkcq30fm4b0@4ax.com>
Source record: 62638

On Mon, 20 Mar 2006 17:54:19 -0500, Dave <W1MCE@comcast.net> wrote:

>Owen Duffy wrote:
>
>> On Mon, 20 Mar 2006 21:31:02 GMT, Bob Miller <NOSPAM@neosoft.com>
>> wrote:
>>
>>
>>
>>>>>>Second, you should measure the antenna feed point impedance at the
>>>>>>feedpoint, or 1/2 wavelength from the feed point [coax corrected for
>>>>>>velocity factor].
>>>
>>
>> Why the half wavelength?
>>
>>
>
>A 1/2 wavelength transmission line repeats the load impedance at the
>antenna with minimum loss, assuming you cannot get an analyzer at the
>antenna itself.
>
>IMO, measuring directly at the antenna and solving the matching/load
>problem there is the easiest and best method. You are free to disagree.

Ok, but again you can measure the impedance anywhere and knowing line parameters, calculate Z at any other point.

Owen
--

3178. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:20:23 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <70eu129ccenpl354f90odhsacri3rc6kih@4ax.com>
Source record: 62639

On Mon, 20 Mar 2006 23:10:15 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Certainly, no repugnance or disrespect intended. Roy is presently

Couching what "appears" to be apology in a statement that projects an
answer upon Roy (and quite commonly from you, anyone) is sleazy
rhetoric.

3179. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:36:39 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <8P-dnZJZNa_ioYLZ4p2dnA@comcast.com>
Source record: 62640

Allison-nospam@nouce.bellatlantic.net wrote:
> On Mon, 20 Mar 2006 17:51:28 -0500, Dave <W1MCE@comcast.net> wrote:
>
>
>>Bob Miller wrote:
>>
>>SNIPPED
>>
>>>I'm confused, wouldn't it be more important to have the right
>>>impedance and swr at the end of the feedline, where the transceiver is
>>>expecting 50 ohms?
>>>
>>>bob
>>>k5qwg
>>>
>>
>>SNIPPED
>>
>>If you have 50 ohms at the antenna, then you will have 50 ohms
>>regardless of the length of coax.
>>
>>A 3:1 VSWR, assuming other responses to this post are correct, means
>>that your antenna connection could be anything from 16 ohms to 150 ohms
>>and all sorts of combinations of resistance and reactance within that range.
>>
>>An antenna analyzer will let you determine antenna resonance, antenna
>>feedpoint impedance [hopefully 50 ohms], coax line loss, and allow
>>proper adjustment at the connection points for your coax.
>>
>>Once again, find someone in your area with an antenna analyzer. I repeat
>>my offer if you are within 60 +/- miles of Concord NH.
>
>
>
> It's possible to tune a Jpole with just a SWR meter. I've done ti
> many times though it's more tedious than with an antenna analyser.
>
> The simplest step is add some length to the long section, not alot
> and see how the change affects it. Add more or less as needed
> for a good minimum. If the minimum is still not on the mark (1:1
> is ideal but anything under 1.3:1 flies well) then adjust the tap
> point (very small movements) and resweep again. With patience
> you (the person that asked) will get it right.
>

> What happens with Jpoles is they often are not built identical
> and small differences do show. Also like most halfwave and
> larger antennas being close to "stuff" tends to affect tuning.
> No harm or foul but learning to prune (aka tune) an atenna is
> a skill and worth developing.
>
> Allison
> KB1GMX

Adding some length to the long leg would be relatively easy, BUT moving the feed point would be a real challenge! The coax shield and center conductor are soldered to the ladder line wires. When I tuned a j-pole in my work shop, tiny movements made a change amd maintaining the position while trying to get it soldered was nearly impossible. (At least for my clumsy fingers.) Is there a better way to connect the feed point?

Thanks, jimbo

3180. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:36:59 UTC
From: fazamy@aol.com
Message-ID: <1142897819.468971.52560@i40g2000cwc.googlegroups.com>
Source record: 62641

Is the polarity of the sending station and receiving station relevant
to this discussion??
That is, a dipole sending station and a dipole receiving station would
tend to out perform a dipole sending station and a vertical receiving
station and vice versa?

Are there more stations with dipoles than stations with verticals?

3181. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:41:17 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <x4HTf.3410$tN3.538@newssvr27.news.prodigy.net>
Source record: 62642

Richard Clark wrote:
> (and quite commonly from you, anyone) is sleazy
> rhetoric.

No matter what I say, you consider it to be sleazy
rhetoric, Richard. It's not my problem.

I have been telling Roy this basic technical stuff
for three years or more. It's also not my problem.
--
73, Cecil http://www.qsl.net/w5dxp

3182. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:43:00 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <86HTf.3411$tN3.1493@newssvr27.news.prodigy.net>
Source record: 62643

fazamy@aol.com wrote:

> Is the polarity of the sending station and receiving station relevant
> to this discussion??

Yes on ground wave VHF/UHF. No on HF skip.
--
73, Cecil http://www.qsl.net/w5dxp

3183. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:49:22 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <cbfu1212dpr3oos3c4019ps28qid7d1bra@4ax.com>
Source record: 62644

I have no personal experience with your conditions.
However, the scenario is familiar. You would like to "tidy up" an
installation that is "sort of" working.

You can minimize the effort involved by going to
http://free.prohosting.com/~w0rcy/Jpole/jpole.html

That will allow you to plan the fewest trips to the attic that will
enable you achieve your goals with your resources.

OTH, if you are achieving acceptable results with what you have now I
would advise leaving it alone. If you feel 2-4db more is worth the
effort, lay out your plan!

BTW, I totally agree with Cecil. The fundamental problem appears that
the antenna is a bit short! Any change other than that is a patch!

On Mon, 20 Mar 2006 08:12:51 -0700, jimbo <jimbo62@spamex.com> wrote:

>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>attic. I have 50 feet of LMR240 coax running to the basement. I
>measure SWR at the following frequencies on simplex.
>
>144.2 2.5
>145.2 2.4
>146.2 2.3
>147.2 1.9
>147.9 1.7
>
>Can I conclude that the antenna is electrically short for the 2 meter
>band?
>
>Thanks for any insight, jimbo
John Ferrell W8CCW

3184. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:51:44 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <coadncnHA4yV3YLZRVn-sQ@comcast.com>
Source record: 62645

Owen Duffy wrote:
> On Mon, 20 Mar 2006 15:37:26 -0500, Dave <W1MCE@comcast.net> wrote:
>
>
>>In your set up the VSWR tells you very little!!
>>
>>That 50 feet of LMR240 is modifying the actual VSWR as seen at your
>>meter. It is not telling you the VSWR at the feed point.
>
>
> The matched line loss of 50' LMR240 at 146MHz is 1.5dB.
>
> Jimbo tells us the source end VSWR at 146.2 is 2.3. One can make a
> reasonable estimate that the VSWR at the antenna end of the line is
> 3.5 (not a very good match for an antenna that should use an
> adjustable matching system). Total line loss is around 2.3dB, or about
> 0.9dB worse than matched line loss.
>
> Now look at the tx output power, has it decreased because of the bad
> load. Add that reduction (in dB) to the 0.9% above to get the overall
> degradation of transmit perfomance.
>
> A question: Is the proximity of other structures or feedline isolation
> a cause of the high VSWR, and should you resolve that before tweaking
> the matching?
>
> Owen
> --

The numbers are confusing. 50 feet of LMR240 1.5 dB, (I understand that.) Total line loss 2.3 dB. (Where did you get that?) .9 dB worse than matched line loss. (Where did you get that number?)

There is wooden structure near since the antenna is located in an attic. But I don't think there are any large metal structures close to the antenna. The coax is in PVC pipe. It may go close to a metal AC duct on it's way to the basement..

Thanks, jimbo

3185. Re: 2.4GHZ TRANSCEIVER PCB 4-LAYER LAYOUT POINTERS AT 25X17MM DIMENSION....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:53:34 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <GK2dnUP8Ian53YLZSa8jmw@karoo.co.uk>
Source record: 62646

mazerom wrote:

> CAN YOU GIVE ME COMMON PITFALLS MADE BY ENGINEERS IN PCB LAYOUT DESIGN
> ON MY APPLICATION IN TERMS OF:
> 1.GROUND AND POWER PLANES
> 2.SHARED/NETWORK IMPEDANCE
> 3.STAR GROUNDS/ISLANDS
> 4.PARASITICS
> 5.PROXIMITY OF MY CHIP ANTENNA/SWITCH/AMPLIFIER
>
> THANK YO SO MUCH!

First, stop using capslock! We all hate people shouting!

2.4GHz?

If in doubt, add an extra PCB layer but be aware of the increased capacitance. 4 layers? 6 layers costs almost the same price and makes it easier to route for RF.

The Impedance seen into Power Deliver System at the device should keep low from DC to several harmonics of clock frequencies on your PCB!

Use different layers for the 1.8V and the 3.3V and try to keep the impedance well below 100milli Ohms.

Use NPO capacitors and if out of range, resort to X7R capacitors. This is not a PCB problem, more a general remark.

Reduce parasitic inductance by:

Reduce the length of via for decoupling capacitors
(i.e.reduce the loop inductance)
Change the layout of decoupling capacitors
The thickness of high frequency capacitors
Parallel the decoupling capacitors with same value
or multiple skew values

Try to get your hands on any of the nifty simulation tools from Ansoft or similar companies. Many of them have "student versions" of their packages.

Cheers

Have fun...

Cheers

3186. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-20 23:55:41 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <1iHTf.3414$tN3.2471@newssvr27.news.prodigy.net>
Source record: 62647

Cecil Moore wrote:
> fazamy@aol.com wrote:
>
>> Is the polarity of the sending station and receiving station relevant
>> to this discussion??
>
> Yes on ground wave VHF/UHF. No on HF skip.

Oops, lest some nitpicker jump in, I should have said "surface
wave", not "ground wave". And I probably should have included
a "usually" while I was at it.
--
73, Cecil http://www.qsl.net/w5dxp

3187. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:00:16 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <SuydncjfIZuM34LZnZ2dnUVZ_t-dnZ2d@comcast.com>
Source record: 62648

Owen Duffy wrote:

SNIPPED
> Ok, but again you can measure the impedance anywhere and knowing line
> parameters, calculate Z at any other point.
>
> Owen
> --

Owen, I don't disagree with you. But, IMO, it is beyond Bob Miller's expertise/knowledge, at this point in his ham experience, to perform those calculations.

I didn't perform those calculations until my 3rd year in engineering school.

KISS, and fix it at the source.

3188. Re: Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:02:41 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <GK2dnUL8IakY34LZSa8jmw@karoo.co.uk>
Source record: 62649

Ron J wrote:

> Hello and greetings all,
>
> I borrowed a field strength measurement equipment from the school lab.
> I wanted to measure the the field strength of a low power FM
> transmitter. I was told that I need to setup the antenna height
> correctly. I didn't think of this. I thought all I need is the proper
> antenna length and polarization for measurement. Can anyone give me
> some insight regarding using the proper antenna height? Thank you.

Ron,

You need to tell what antenna type it is first.
Some antennas need to be 1/4 of a wavelength up in the air to work properly,
other types maybe 1/2 wavelength up.
Is it a vertikal, dipole or what...

Many antennas develops a high angle of rtadiation when close to the ground
and after you mounted the antenna at the correct height, a totally
different radiation pattern develops.

So there are no simple answer to your question Ron, not without more
information.

Cheers

Dan / M0DFI

3189. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:05:53 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <SuydncvfIZv83oLZnZ2dnUVZ_t-dnZ2d@comcast.com>
Source record: 62650

jimbo wrote:

>SNIPPED

>
>
>
> Adding some length to the long leg would be relatively easy, BUT moving
> the feed point would be a real challenge! The coax shield and center
> conductor are soldered to the ladder line wires. When I tuned a j-pole
> in my work shop, tiny movements made a change amd maintaining the
> position while trying to get it soldered was nearly impossible. (At
> least for my clumsy fingers.) Is there a better way to connect the feed
> point?
>
> Thanks, jimbo

Jimbo, you just added another variable to the discussion. Please describe the details of the coax to ladder line and ladder line to antenna for us.

3190. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:10:00 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <5jgu12hcv5i5bg0ijf8k1t75vuio21070c@4ax.com>
Source record: 62651

On Mon, 20 Mar 2006 16:51:44 -0700, jimbo <jimbo62@spamex.com> wrote:

>Owen Duffy wrote:
>> On Mon, 20 Mar 2006 15:37:26 -0500, Dave <W1MCE@comcast.net> wrote:
>>
>>
>>>In your set up the VSWR tells you very little!!
>>>
>>>That 50 feet of LMR240 is modifying the actual VSWR as seen at your
>>>meter. It is not telling you the VSWR at the feed point.
>>
>>
>> The matched line loss of 50' LMR240 at 146MHz is 1.5dB.
>>
>> Jimbo tells us the source end VSWR at 146.2 is 2.3. One can make a
>> reasonable estimate that the VSWR at the antenna end of the line is
>> 3.5 (not a very good match for an antenna that should use an
>> adjustable matching system). Total line loss is around 2.3dB, or about
>> 0.9dB worse than matched line loss.
>>
>> Now look at the tx output power, has it decreased because of the bad
>> load. Add that reduction (in dB) to the 0.9% above to get the overall
>> degradation of transmit perfomance.
>>
>> A question: Is the proximity of other structures or feedline isolation
>> a cause of the high VSWR, and should you resolve that before tweaking
>> the matching?
>>
>> Owen
>> --
>

One step at a time...

>The numbers are confusing. 50 feet of LMR240 1.5 dB, (I understand
>that.)

Ok.
> Total line loss 2.3 dB. (Where did you get that?)

It can be calculated knowing the line loss and source end VSWR. The
additional 0.8dB is increased line loss due to operation with VSWR>1.
Try http://www.vk1od.net/tl/tllce.php for the calcs.

> .9 dB worse
>than matched line loss. (Where did you get that number?)

Sorry, my rounding error, call it 0.8dB. It is by subtraction of the
matched line loss from the total line loss.

>
>There is wooden structure near since the antenna is located in an
>attic. But I don't think there are any large metal structures close to
>the antenna. The coax is in PVC pipe. It may go close to a metal AC
>duct on it's way to the basement..

Is the roof sarked (does it have a metal foil lining under the tiles
or shingles), presumably it isnt a metal roof.

>
>Thanks, jimbo
--

3191. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:15:04 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <lugu12pd19id79695k52n83jrm1a9r3a5b@4ax.com>
Source record: 62652

On Mon, 20 Mar 2006 19:00:16 -0500, Dave <W1MCE@comcast.net> wrote:

>Owen Duffy wrote:
>
>SNIPPED
>>
>> Ok, but again you can measure the impedance anywhere and knowing line
>> parameters, calculate Z at any other point.
>>
>> Owen
>> --
>
>Owen, I don't disagree with you. But, IMO, it is beyond Bob Miller's
>expertise/knowledge, at this point in his ham experience, to perform
>those calculations.
>
>I didn't perform those calculations until my 3rd year in engineering school.
>
>KISS, and fix it at the source.

Dave, there is no doubt that the closer you are to the antenna, the
less error introduced by tolerance on line parameters. On the
otherhand, the instrumentation / user can be disruptive or real
inconvenient.

As for the calcs, one can be lazy and use
http://www.vk1od.net/tl/tllce.php (if one's cable type is supported).

My antenna analyser can't do the calcs internally, I don't know if
some can, but it would be a pretty handy feature.

Owen
--

3192. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:17:39 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <0dKdne_H-OKG24LZRVn-iw@comcast.com>
Source record: 62653

Dave wrote:
> jimbo wrote:
>
>> SNIPPED
>
>
>>
>>
>>
>> Adding some length to the long leg would be relatively easy, BUT
>> moving the feed point would be a real challenge! The coax shield and
>> center conductor are soldered to the ladder line wires. When I tuned a
>> j-pole in my work shop, tiny movements made a change amd maintaining
>> the position while trying to get it soldered was nearly impossible.
>> (At least for my clumsy fingers.) Is there a better way to connect the
>> feed point?
>>
>> Thanks, jimbo
>
>
> Jimbo, you just added another variable to the discussion. Please
> describe the details of the coax to ladder line and ladder line to
> antenna for us.
>

Sorry for the confusion. The ladder line is the j-pole antenna. Cut to
the appropriate length, etc. The coax feed line is attached to the "J"
near the bottom, maybe 2 inches up.

Thanks, jimbo

3193. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:21:25 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <0dKdne7H-OJg24LZRVn-iw@comcast.com>
Source record: 62654

John Ferrell wrote:
> I have no personal experience with your conditions.
> However, the scenario is familiar. You would like to "tidy up" an
> installation that is "sort of" working.
>
> You can minimize the effort involved by going to
> http://free.prohosting.com/~w0rcy/Jpole/jpole.html
>
> That will allow you to plan the fewest trips to the attic that will
> enable you achieve your goals with your resources.
>
> OTH, if you are achieving acceptable results with what you have now I
> would advise leaving it alone. If you feel 2-4db more is worth the
> effort, lay out your plan!
>
> BTW, I totally agree with Cecil. The fundamental problem appears that
> the antenna is a bit short! Any change other than that is a patch!
>
> On Mon, 20 Mar 2006 08:12:51 -0700, jimbo <jimbo62@spamex.com> wrote:
>
>
>>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>>attic. I have 50 feet of LMR240 coax running to the basement. I
>>measure SWR at the following frequencies on simplex.
>>
>>144.2 2.5
>>145.2 2.4
>>146.2 2.3
>>147.2 1.9
>>147.9 1.7
>>
>>Can I conclude that the antenna is electrically short for the 2 meter
>>band?
>>
>>Thanks for any insight, jimbo
>
> John Ferrell W8CCW

Well, the thing operates OK as far as I can tell. But it doesn't take much to hit a 2 meter repeater. I guess I am more concerned about damage to the transmitter than I am about getting full power radiated.

Thanks, jimbo

3194. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:32:02 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dvnhi2kqs2@engnntp2.cig.mot.com>
Source record: 62656

But-out flag cleared//

"jimbo" <jimbo62@spamex.com> wrote in message
news:yZOdnZUtoLx6uoLZnZ2dnUVZ_tydnZ2d@comcast.com...
> Dave wrote:
> > In your set up the VSWR tells you very little!!
> >
> > That 50 feet of LMR240 is modifying the actual VSWR as seen at your
> > meter. It is not telling you the VSWR at the feed point....
> >
> > Second, you should measure the antenna feed point impedance at the
> > feedpoint, or 1/2 wavelength from the feed point [coax corrected for
> > velocity factor].
> > .....
> >
> > DD
> >
> > jimbo wrote:
> >
> >> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
> >> attic. I have 50 feet of LMR240 coax running to the basement. I
> >> measure SWR at the following frequencies on simplex.
> >>
> >> 144.2 2.5
> >> 145.2 2.4
> >> 146.2 2.3
> >> 147.2 1.9
> >> 147.9 1.7
> >>
> >> Can I conclude that the antenna is electrically short for the 2 meter
> >> band?
> >>
> >> Thanks for any insight, jimbo

Seems to me there are several items being asked / answered here. Sort
of going backwards through the parts of the thread I can see...

1 - I think it is a safe bet that if the VSWR at the transmitter
(regardless of feed like loss BUT within normally expected values) is lowest
at the high end of the band, then the antenna system is either too short or
resonant too high in frequency - take your pick of wording.

2- As you measure VSWR further and further from the load (antenna) you will
get a better and better value because of the loss in the transmission line.
This is because as signal is lost to the loss (attenuation) of the line,

there is less to reflect at the load and less makes it back to the measuring device - when compared to tehat sent from teh transmitter. Less power to measure in the backward direction = better VSWR.
Side Note that the loss is twice the line loss in this case, because it travels it twice in a round trip. Another result of this is that a simple resistive (lossy) attenuator (or a hunk of t-line used as an attenuator) has a return loss that is equal to twice its attenuation rating. In other words, a 10dB pad has a 20 dB return loss and is a pretty good load, since only 1% of the power makes it back to be measured for the VSWR measurement.

3- Then there are comments about measuring an *impedance* *at* the load, or 1/2 wavelength away. This is because the *Impedance* repeats every half wavelength in a *LOSS-LESS* line (due to the much discussed physics of waves). For practical lines, with minimal loss, it's pretty close, but, as explained above, approaches 50 ohms (Zo) further and further from the load. Therefore, accuracy in the measured *impedance* degrades further and further from the load.

But/out flag set//

73, Steve, K,9.D;C'I

Hi Owen.

3195. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:40:15 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dvni1g$l75$2@engnntp2.cig.mot.com>
Source record: 62657

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:6adm12pf87ibajc82i7a1hhjh0aivkrpib@4ax.com...
> On 17 Mar 2006 13:13:07 -0800, "art" <aunwin@insightbb.com> wrote:
>
> > Perhaps he has read something that forces the current flow to follow
D,C. properties.
>
> Hmmmm, let's put this another way. Let's say you have a herd of ice
> cubes and you put them in a tray of oil. They sink immediately. The
> oil is the conductor, and the ice cubes are the charge being
> transferred. They sink because of buoyancy. Their weight is greater
> than that of the oil so this is our DC metaphor. The ice cubes use
> the full depth of the oil.
>
> Now we create an AC metaphor by replacing the oil with water. The ice
> cubes are lighter than water, on a cubic basis, and thus they float.
> They cannot use the full depth of the water. The charge has been
> forced to the surface to conduct. You can push them underwater, but
> once you release them they float again. The water depth that supports
> them is the skin of the skin effect.
>
> Now we create the Skin Effect metaphor. You drain the water to height
> that is half that of the ice cubes. The ice cubes now use the full
> depth of the water just as they use the full depth of the oil.
> However, there is less water than formerly, and less water than
> formerly for the oil. The skin depth is not deep enough to support
> the charge - resistance increases.
>
> Oh, and if you wanted penny candy, it would cost 2 cents. One penny
> for the candy, and one penny for the 5% tax on the first penny. A
> penny doesn't have enough skin depth to support welfare.

Richard,

This is cute. Both the ice/oil metaphore and the tax round off issue.

I think Roy's comment was interpreted as saying that "skin effect does not
occur for thin conductors" It was meant that with a thin conductors, the
skin effect is there, BUT it is such that you *can consider* the current
density as being nearly constant and therefore can be handled by using
resistance which will be almost the same as that at DC.
Does that do it Roy?

73, Steve, K,9.D;C'I

73, Steve, K,9.D;C'I

3196. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 00:54:03 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dvnirblof2@engnntp2.cig.mot.com>
Source record: 62658

Let me try on this, then I better head for home...

"art" <aunwin@insightbb.com> wrote in message
news:1142654608.872051.303460@g10g2000cwb.googlegroups.com...
> Tom,
> .....The fact is that I am
> refferring to the use of metallised mylar with antennas. Obviously the
> metalised thickness could less than any "skin" thicknes.
> So one has to decide I can compromise by adding more area to compensate
> and by how much.

The metal thickness is awfully thin on this material...VERY thin. This
means a high resistance. ou should be able to measure what ever you have
and see what the DC resistance is. The DC resistance should be the
MINIMUN you should experience in teh RF domain, right.
When you say "adding more area" I think you mean to say that you simply make
the Mylar "strip" *Wider*, right. Well, wider means that it'll prpbably
have a broader bandwidth also. Now, the key here is whether you can widen
it enough to make up for the thin material.
I ask if the use of a "strip" of conductor will experience something of a
skin-effect-like effect because teh current will tent to force itself out to
the edges of teh strip for the same reason skin effect occurs... starte to
hurt my brain a this point.

I see this as possibly the most effective
> change with respect to radiation since we now have forced more current
> to the extreme outside surface but this is conjecture on my part.
> The answer that is comming back at me is that the current
> density is essentially the same but with no explanation
> as to why the decay rate has changed since that which creates it has
> not changed.
> I find it difficult to accept that
> the decay rate has changed

I don't think it was meant that the decay rate changes. The effect has to
still be there. It is that with a thin (compared to skin-depth) conductor,
the change in current (density) with depth doesn't change much before you
run out of conductor, therefore it can pretty much be ignored. Also, for a
round conductor, remember that the decay rate from the two opposite sides
will collide with each other. So that it starts to decrease, but half way
through it "hits" the other :skin-depth current" and it starts back up
again.

> and intuatively I would have thought the surface current
> would increase significantly.

This I don't follow.

73, Steve, K,9.D;C'I

3197. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 01:09:54 UTC
From: w8ji@akorn.net
Message-ID: <1142903394.663573.26510@v46g2000cwv.googlegroups.com>
Source record: 62655

Yuri Blanarovich wrote:
> <w8ji@akorn.net> wrote in message
> news:1142850891.475736.293910@v46g2000cwv.googlegroups.com...
> >
> > Yuri Blanarovich wrote:
> >> Yea Tom, it all started with ALL coils, it is MY theory and you can ruin
> >> MY
> >> theory.
> >
> > What is your theory Yuri?
> > You didn't explain it.
> > 73 Tom
> >
>
> Nice twist again! (That was sarcasm and take on your comment about ALL
> coils)
>
> I didn't produce any MY theory.

OK, so you have no theory and I assume no opinion.

Good enough.

73 Tom

3198. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 01:29:19 UTC
From: w8ji@akorn.net
Message-ID: <1142904559.263188.99110@t31g2000cwb.googlegroups.com>
Source record: 62659

Cecil Moore wrote:
> Certainly, no repugnance or disrespect intended. Roy is presently
> in the unenviable position of agreeing with (EZNEC and me) or
> disagreeing with (EZNEC and me). Hint: rhetorical questions
> require no answer.
> 73, Cecil http://www.qsl.net/w5dxp

I'm not sure what that is all about, but Cecil....there are over 550 posts in this thing now.

Can you state in a few clearly written lines what you have learned or concluded? If that is too involved, that's OK.

I'm just trying to understand what you point is in all of this, and where your head is at after all the posts.

My conclusion for short mobile or fixed location loaded antennas is:

1.) If a loading coil has compact form and is terminated in a capacitance that presents a reasonably low impedance compared to inductor capacitance to the outside world, current taper will be minimal. As a matter of fact, it can be immeasurable.

2.) Current taper and phase shift do not correspond to the electrical degrees the loading coil "replaces", except as the physical size of the loading coil might increase stray capacitance to the outside world.

3.) Phase shift of current is anything from zero to a reasonably small number of degrees, and does not correspond to the electrical degrees the inductor replaces.

4.) There are at least two ways to get a good answer. One is by a circuit model with enough L and C sections, the other is with a wave theory approximation. Both models have limits.

I think that pretty much is it. What did you conclude? Can you get it into a few clear words?

I just want to see how far apart everyone still is.

73 Tom

3199. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 02:06:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <zcJTf.40542$_S7.31108@newssvr14.news.prodigy.com>
Source record: 62661

w8ji@akorn.net wrote:
> Can you state in a few clearly written lines what you have learned or
> concluded?

http://www.qsl.net/w5dxp/current.htm (bottom of page)

> 1.) If a loading coil has compact form and is terminated in a
> capacitance that presents a reasonably low impedance compared to
> inductor capacitance to the outside world, current taper will be
> minimal. As a matter of fact, it can be immeasurable.

Current taper depends upon where the coil is installed in the
standing wave antenna system. It can be flat, positive, or
negative. If properly placed, it can even have current flowing
into both ends of the coil at the same time, i.e. a 180 degree
phase shift in the currents at each end.

The coil distorts the current waveform away from the pure cosine
envelope presented by a 1/2 wavelength thin-wire dipole but then
so does a large diameter conductor.

> 2.) Current taper and phase shift do not correspond to the electrical
> degrees the loading coil "replaces", except as the physical size of the
> loading coil might increase stray capacitance to the outside world.

Phase shift corresponds to the delay through the coil.
It can be estimated from the self-resonant frequency
measurement where the delay is known to be 90 degrees.
This is a common method of estimating the delay (electrical
length) of a transmission line stub.

> 3.) Phase shift of current is anything from zero to a reasonably small
> number of degrees, and does not correspond to the electrical degrees
> the inductor replaces.

My 75m bugcatcher coil occupies about 60 degrees at 4 MHz,
2/3 of the electrical length of the antenna. 60 degrees doesn't
seem to meet the definition of "reasonably small". IMHO, that
would qualify as "reasonably large", i.e. more than half the
electrical length of the 75m mobile antenna.

> 4.) There are at least two ways to get a good answer. One is by a
> circuit model with enough L and C sections, the other is with a wave
> theory approximation. Both models have limits.

It is impossible to get a good answer with a model that presupposes
faster than light propagation through the coil with equal amplitudes

and phases at each end of the coil. The error is the same as assuming such for a piece of transmission line. Dr. Corum's suggested crossover point where the lumped-circuit model fails is 15 degrees or 0.04 of a wavelength. Either the distributed-network model or Maxwell's equations must be used beyond that point in order to obtain valid results.

> I think that pretty much is it. What did you conclude? Can you get it
> into a few clear words?

A 75m bugcatcher coil is a "slow wave structure" described by Ramo and Whinnery, by the IEEE Dictionary, and by Dr. Corum. The velocity factor of my 75m bugcatcher coil has been measured at ~0.017 which agrees with the published formula.
--
73, Cecil http://www.qsl.net/w5dxp

3200. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 02:06:37 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <121unth8seg6jd0@corp.supernews.com>
Source record: 62660

Steve Nosko wrote:
>
> I think Roy's comment was interpreted as saying that "skin effect does not
> occur for thin conductors" It was meant that with a thin conductors, the
> skin effect is there, BUT it is such that you *can consider* the current
> density as being nearly constant and therefore can be handled by using
> resistance which will be almost the same as that at DC.
> Does that do it Roy?

Yes. After art misinterpreted what I originally said (that you can ignore skin effect when the thickness is small enough), I said explicitly just what you did. Maybe it'll sink in a little better after having been said once and explained twice.

Roy Lewallen, W7EL

3201. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 02:40:48 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <121uptqb77vn2ce@corp.supernews.com>
Source record: 62662

jimbo wrote:
> Allison-nospam@nouce.bellatlantic.net wrote:
>
>> On Mon, 20 Mar 2006 17:51:28 -0500, Dave <W1MCE@comcast.net> wrote:
>>
>>
>>> Bob Miller wrote:
>>>
>>> SNIPPED
>>>
>>>> I'm confused, wouldn't it be more important to have the right
>>>> impedance and swr at the end of the feedline, where the transceiver is
>>>> expecting 50 ohms?
>>>>
>>>> bob
>>>> k5qwg
>>>>
>>>
>>> SNIPPED
>>>
>>> If you have 50 ohms at the antenna, then you will have 50 ohms
>>> regardless of the length of coax.
>>>
>>> A 3:1 VSWR, assuming other responses to this post are correct, means
>>> that your antenna connection could be anything from 16 ohms to 150
>>> ohms and all sorts of combinations of resistance and reactance within
>>> that range.
>>>
>>> An antenna analyzer will let you determine antenna resonance, antenna
>>> feedpoint impedance [hopefully 50 ohms], coax line loss, and allow
>>> proper adjustment at the connection points for your coax.
>>>
>>> Once again, find someone in your area with an antenna analyzer. I
>>> repeat my offer if you are within 60 +/- miles of Concord NH.
>>
>>
>>
>>
>> It's possible to tune a Jpole with just a SWR meter. I've done ti
>> many times though it's more tedious than with an antenna analyser.
>>
>> The simplest step is add some length to the long section, not alot
>> and see how the change affects it. Add more or less as needed
>> for a good minimum. If the minimum is still not on the mark (1:1

>> is ideal but anything under 1.3:1 flies well) then adjust the tap
>> point (very small movements) and resweep again. With patience
>> you (the person that asked) will get it right.
>>
>> What happens with Jpoles is they often are not built identical
>> and small differences do show. Also like most halfwave and
>> larger antennas being close to "stuff" tends to affect tuning.
>> No harm or foul but learning to prune (aka tune) an atenna is a skill
>> and worth developing.
>>
>> Allison
>> KB1GMX
>
>
> Adding some length to the long leg would be relatively easy, BUT moving
> the feed point would be a real challenge! The coax shield and center
> conductor are soldered to the ladder line wires. When I tuned a j-pole
> in my work shop, tiny movements made a change amd maintaining the
> position while trying to get it soldered was nearly impossible. (At
> least for my clumsy fingers.) Is there a better way to connect the feed
> point?
>
> Thanks, jimbo
Connect your feed points to the Jpole using clamps. Adjust the location
of the feed point and the characteristic impedance by moving the clamps.
You do not have to adjust the length of the feed line until you fine
tune the feed point impedance.
I just finished making the collapsible jpole antenna that was featured
in QST last spring. When I first tested the impedance it was way off.
All I had to do was loosen the clamps and bump the clamps up and down
the pole to obtain optimal settings. Due to the out of ham band use I
will be putting the jpole to the SWR at my xmit freq. is higher than I
would like the midpoint SWR is about 1.1:1.
This is why Antenna design is an ART not a SCIENCE.

Dave WD9BDZ

3202. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 03:03:01 UTC
From: Bill Turner <noway@nohow.com>
Message-ID: <441f6ce5$1_4@newsfeed.slurp.net>
Source record: 62663

ORIGINAL MESSAGE:

Cecil Moore wrote:

> Cecil Moore wrote:
> > fazamy@aol.com wrote:
> > >> Is the polarity of the sending station and receiving station
> > relevant
> >> to this discussion??
> > > Yes on ground wave VHF/UHF. No on HF skip.
>
> Oops, lest some nitpicker jump in, I should have said "surface
> wave", not "ground wave". And I probably should have included
> a "usually" while I was at it.
> --

********** REPLY SEPARATOR **********

Nitpicker alert:

1. You should have not limited the "NO" to HF. Six meters is also a
"NO" for ionospheric skip.

2. Polarity of the signal for ground wave (not surface or space wave)
is indeed important. Vertical polarization works best. Horizontal is
rapidly attenuated.

Bill, W6WRT

3203. Re: Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 03:12:56 UTC
From: Tom Uwano <uwano@hi-ho.ne.jp>
Message-ID: <dvnqvo$18dc$1@dojima-n0.hi-ho.ne.jp>
Source record: 62664

Dan Andersson wrote:
> Ron J wrote:
>
>> Hello and greetings all,
>>
>> I borrowed a field strength measurement equipment from the school lab.
>> I wanted to measure the the field strength of a low power FM
>> transmitter. I was told that I need to setup the antenna height
>> correctly. I didn't think of this. I thought all I need is the proper
>> antenna length and polarization for measurement. Can anyone give me
>> some insight regarding using the proper antenna height? Thank you.

> So there are no simple answer to your question Ron, not without more
> information.
> Cheers
> Dan / M0DFI

Generally when you place TX and RX antennas above the ground
and you change the height of RX antena, you see the variation of
signal strength. This is due to the ground reflection and we call
it "height pattern." Probably your manual suggests this influence.
How to avoid this? (although both methods do not give rigorous results,)
1. You may take the average of height patten.
2. Make the distance short between the antennas.

Tom/jj3fbs

3204. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 03:35:54 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <xwKTf.2422$ud2.520@fe09.lga>
Source record: 62665

> OK, so you have no theory and I assume no opinion.
> Good enough.
> 73 Tom
>

That just about summarizes you. You don't need theory, just go measure it as I described. The theory started with Dr. Nikola Tesla and skillfully defended by W5DXP. I don't claim to steal anybody's theory, other people came up with explanation of the effect, I am just defending it based on reality, burned coils and not coming up with "theory" that would back up wrong claims.

What the hell is all the discussion about? Your misinformation on your web site, and you can't allow to get it right, because you can't possibly be wrong or admit to it.
Just crap, no answer to technical questions, defending your baloney. What's your theory? RF behaves like DC in a loading coil?

ANSWER the frickin questions!!!
You can't, because you either don't get it or your ego doesn't allow you to get it.
Pretty sad picture. I have no more to say, if you have no answers. I get better response from a brick wall.

Just don't claim to be engineer or "JI Engineering". Engineers do not behave like that, they have certain code of ethics and rules on usage of term engineer and engineering. You might want to check with Georgia Engineers association.

I am sorry about all this, but I just don't take a crap and for the umpteen time, it just gets too much. Man who attacked misinformation on Interned on QRZ pages is guilty of the same. K7GCO has a name for people like that: "Technical imposters".

Sayonara!!

Yuri, K3BU

3205. Re: vert vs dipole gut comparison

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 04:07:08 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <lXKTf.1339$123.1249@fed1read09>
Source record: 62666

"Gary Schafer" <gaschafer@comcast.net> wrote in message
news:qmjt12143asea3dkefhi3v1lpucoh86pbh@4ax.com...

> >
> >
> > You want both antennas if you can do it. Anyone who declares one or the
> >other the winner is simply wrong.
> >
> > - 73 de Mike KB3EIA -
>
> I did some tests a couple of years ago on 10 meters between vertical
> and horizontal on an 1800 mile path. It seems that there is quite a
> bit of rotation in polarity of the signal from minute to minute. I
> tried right and left hand circular to confirm that it was rotation.
>
> 73
> Gary K4FMX
>

Cross-polarization losses are in the neighborhood of 10-20 dB at VHF and above. With my license, I cannot do HF, so others may chime in with those numbers. Assuming ... there's that word ... that the random polarization variations ("rotations") are around some central figure, during for a given QSO, then one antenna will work better -- the one that happens to be optimum for that path and for the antenna on the other end of the QSO.

There exists a phenomenon that I do not understand well, called Faraday rotation, where an EM wave passing through a magnetic field will undergo a polarization "alteration", so to speak. Thus, two verticals on the ends of a long-distance QSO might not perform as well as if one were a vertical and the other a horizontal -- due to the Earth's magnetic field.

John
KD6VKW

3206. Re: Skin depth question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 04:45:23 UTC
From: art <aunwin@insightbb.com>
Message-ID: <1142916323.574880.299610@j33g2000cwa.googlegroups.com>
Source record: 62667

Great job Steve, you kept to the subject which was dealing with extra
thin conductor material
backed by an insulator which I mentioned earlier
ve must consider both sides.
Now I am with you all the way except the part you don't follow and the
question as to what happemes at the conductor and insulator interface.
Now to the last point regarding current at the surface. First we can
say that decay is negligable
so can we state that radiation resistance
has risen? Can we say surface current has risen over and above when the
conductor was thick?
Remember Steve I started this thread
there was a problem with my understanding and I am looking for where I
am in error, not defining what actually happens. Now let me add
a further step which probably bring about howls.
We have broadened the width of the element significantly. We have
limited penetration depth of the current where decay is negligable and
"all" current is at the same phase.
The field generated by current reaction
is close to a hundred percent efficient
and actually now closely conforms to a true reflector as Terman
describes. So what exactly
are we left with and are we gyrating towards a dish antenna where like
a reflector or mirror
we can now "focus" energy?
And what happens at the conductor insulator interface? Is a field
generation at the rear prevented by the insulator such like a true dish
there is no field other than spill over?
Steve you have kept within the confines
of the question as enunciated in my first post so I would appreciate
you following up on these final thoughts.
Very best regards
Art.

3207. MFJ-207 projects

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 05:23:50 UTC
From: "pdrunen@aol.com" <pdrunen@aol.com>
Message-ID: <1142918630.577155.183480@u72g2000cwu.googlegroups.com>
Source record: 62668

Hi all

I have a MFJ-207 Antenna Analyzer taken at our last weekend hamfest.

Good unit but I bet there is a group of out there that passes good
modifications for this unit.

Some right out of my head.

1 Use a PLL to lockup the carrier down to 10KHz

2 provide for either FM or AM modulation, as well as CW.

3: A method to detemine the impedance of the antenna, most all of us
should have access to a low band scope.

de KJ4UO

3208. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 10:26:16 UTC
From: w8ji@akorn.net
Message-ID: <1142936775.983229.257760@j33g2000cwa.googlegroups.com>
Source record: 62669

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > Can you state in a few clearly written lines what you have learned or
> > concluded?
>
> http://www.qsl.net/w5dxp/current.htm (bottom of page)

Thanks Cecil. I wanted to be sure where you were at now.
We still disagree about several important points.

In a few more years, there might be a resolution.

73 Tom

3209. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 10:46:55 UTC
From: Mike Coombes <vk6mo@iinet.net.au>
Message-ID: <441fd9a1$0$4671$5a62ac22@per-qv1-newsreader-01.iinet.net.au>
Source record: 62670

Grow up.

<w8ji@akorn.net> wrote in message
news:1142936775.983229.257760@j33g2000cwa.googlegroups.com...
>
> Cecil Moore wrote:
>> w8ji@akorn.net wrote:
>> > Can you state in a few clearly written lines what you have learned or
>> > concluded?
>>
>> http://www.qsl.net/w5dxp/current.htm (bottom of page)
>
>
> Thanks Cecil. I wanted to be sure where you were at now.
> We still disagree about several important points.
>
> In a few more years, there might be a resolution.
>
> 73 Tom
>

3210. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 10:56:43 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <LpqdnV21e41xRoLZRVn-vA@comcast.com>
Source record: 62671

OK, I misunderstood.

jimbo wrote:

> Dave wrote:
>
>> jimbo wrote:
>>
>>> SNIPPED
>>
>>
>>
>>>
>>>
>>>
>>> Adding some length to the long leg would be relatively easy, BUT
>>> moving the feed point would be a real challenge! The coax shield and
>>> center conductor are soldered to the ladder line wires. When I tuned
>>> a j-pole in my work shop, tiny movements made a change amd
>>> maintaining the position while trying to get it soldered was nearly
>>> impossible. (At least for my clumsy fingers.) Is there a better way
>>> to connect the feed point?
>>>
>>> Thanks, jimbo
>>
>>
>>
>> Jimbo, you just added another variable to the discussion. Please
>> describe the details of the coax to ladder line and ladder line to
>> antenna for us.
>>
>
> Sorry for the confusion. The ladder line is the j-pole antenna. Cut to
> the appropriate length, etc. The coax feed line is attached to the "J"
> near the bottom, maybe 2 inches up.
>
> Thanks, jimbo

3211. Re: Ink

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 12:31:29 UTC
From: HankG <hank@invalid.com>
Message-ID: <arydneEmFZSAb4LZnZ2dnUVZ_uqdnZ2d@comcast.com>
Source record: 62672
Cross-posted to: rec.ponds,rec.puzzles,rec.puzzles.crosswords,rec.pyrotechnics,rec.radio.amateur.antenna,rec.radio.amateur.boatanchors,rec.radio.amateur.digital.misc,rec.radio.amateur.dx,rec.radio.amateur.equipment,rec.radio.amateur.homebrew

<mshawjr@frontiernet.net> wrote in message
news:%WwTf.3014$tT.1641@news01.roc.ny...
> Sorry guys. The spam stuff was not my intent. I do oppoligies and won't
> happen again. I have never been on newsgroups before and not sure how to
> work them. I hope you guys can forgive a bad choice. Murphey

So how come I'm seeing repeat posts by you today? Your 'response' smacks of lies. You really have to work on your English. Next time, choose not to crosspost to a dozen groups. Murphey? Really!

HankG

3212. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 13:31:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <LeTTf.46118$2O6.26285@newssvr12.news.prodigy.com>
Source record: 62673

w8ji@akorn.net wrote:
> Thanks Cecil. I wanted to be sure where you were at now.
> We still disagree about several important points.

"The unwillingness of the "gurus" to answer specific
technical questions is pretty disappointing."
- a comment from a reader.

You said you could use the lumped-circuit model to explain
how the current at the top of the coil could be greater
than the current at the bottom of the coil as it is
at the bottom of the page at:

http://www.qsl.net/w5dxp/current.htm

If you are technically correct, why are you so technically
silent on the subject? Does the emperor have no clothes?

At least a dozen of my technical questions have gone
unanswered by being ignored. Lot's of readers have
noticed and commented in emails to me.

If you will repeat your measurements with 1/4WL added
to the top of the base-loaded mobile antenna, you will
start to understand the physics involved. The current
taper through a coil depends upon where in the standing
wave environment that the coil is installed.

The lumped-circuit analysis fails for the typical
75m amateur radio mobile antenna.
--
73, Cecil http://www.qsl.net/w5dxp

3213. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 13:51:16 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <RZadnXHuHeVRmb3Z4p2dnA@comcast.com>
Source record: 62674

jimbo wrote:
> OK, I have a new 2 meter j-pole antenna installed in my 3rd floor attic.
> I have 50 feet of LMR240 coax running to the basement. I measure SWR at
> the following frequencies on simplex.
>
> 144.2 2.5
> 145.2 2.4
> 146.2 2.3
> 147.2 1.9
> 147.9 1.7
>
> Can I conclude that the antenna is electrically short for the 2 meter band?
>
> Thanks for any insight, jimbo

Thanks for all of the advice. I have one more question. Can I tune a
J-Pole antenna in my shop and then move it to the attic and expect the
same performance? In other words, is an antenna an antenna or is an
antenna and it's installation an antenna?

It would seem to me that if the antenna is tuned and works in my shop
it should work in the attic. Otherwise, how do "store bought" antennas
work?

Thanks, jimbo

3214. 2.4ghz inverted V?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 13:53:32 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1142949212.274524.78430@i40g2000cwc.googlegroups.com>
Source record: 62675

Will the classic inverted V work on 2.4ghz (802.11b/g WiFi)?

I just installed a mini PCI WiFi card in my T23 laptop and routed the two coax cables from the card to the back of the LCD screen. I needed two temporary antennas and it dawned on me that maybe a pair of inverted V antennas might just work, at least on a temporary basis until I get a high gain sector antenna built or even a Bi-Quad setup.

I made each leg on the two antennas 30.5mm long. The coax runs straight down from the feed points about 4" then snakes it's way back inside the laptop. The whole shebang is just taped to the back of the laptop.

Will this work? Any problems? What about gain?

Ken KG0WX

3215. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 14:04:32 UTC
From: w8ji@akorn.net
Message-ID: <1142949872.509816.132830@i40g2000cwc.googlegroups.com>
Source record: 62576

Cecil Moore wrote:

> If you are technically correct, why are you so technically
> silent on the subject?

I'm not silent.

I think I've done a good job of explaining things, and I've made measurements and posted results.

> At least a dozen of my technical questions have gone
> unanswered by being ignored. Lot's of readers have
> noticed and commented in emails to me.

So what?

1.) I told you weeks ago I'm too busy working right now to get deeply involved in this.

2.) When measurements are made, you dismiss them as "measuring current in a system with standing waves".

> If you will repeat your measurements with 1/4WL added
> to the top of the base-loaded mobile antenna, you will
> start to understand the physics involved. The current
> taper through a coil depends upon where in the standing
> wave environment that the coil is installed.

Then why can I measure a fixed inductor location in a dfixed antenna, and range from no taper at all in current to just under 1/3 reduction in current? Does you standing wave model explain this very repeatable measurement?

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

> The lumped-circuit analysis fails for the typical
> 75m amateur radio mobile antenna.

I disagree. Unless we want to say so does the standing wave model.

The antenna can be modelled as a series of lumped inductors with capacitance to the outside world just as well as any other method.

73 Tom

3216. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 14:05:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <SKTTf.46122$2O6.12955@newssvr12.news.prodigy.com>
Source record: 62577

jimbo wrote:
> Thanks for all of the advice. I have one more question. Can I tune a
> J-Pole antenna in my shop and then move it to the attic and expect the
> same performance? In other words, is an antenna an antenna or is an
> antenna and it's installation an antenna?

You can tune a J-Pole antenna at one place in free space, move it
to another place in free space, and expect the same results. The
real world is not so forgiving. The conditions will not be
identical but they may (or may not) be close enough to be
acceptable to you. Welcome to the real world of ham radio.
--
73, Cecil http://www.qsl.net/w5dxp

3217. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 14:47:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <jmUTf.46133$2O6.2352@newssvr12.news.prodigy.com>
Source record: 62578

w8ji@akorn.net wrote:

> Cecil Moore wrote:
>>If you are technically correct, why are you so technically
>>silent on the subject?
>
> I'm not silent.

You are silent on the subject of how the lumped-circuit model
explains more current at the top of the coil than exists at
the bottom of the coil. Please share that knowledge with us.

> I think I've done a good job of explaining things, and I've made
> measurements and posted results.

Have you made measurements with 1/4WL added to the top of
a mobile antenna? Will you believe your measurements when
you measure more current "flowing" into the bottom of the
coil than out of the top of the coil?

>>At least a dozen of my technical questions have gone
>>unanswered by being ignored. Lot's of readers have
>>noticed and commented in emails to me.
>
> So what?

:-)

> 1.) I told you weeks ago I'm too busy working right now to get deeply
> involved in this.

:-)

> 2.) When measurements are made, you dismiss them as "measuring current
> in a system with standing waves".

It has been proven beyond a reasonable doubt that standing wave
current, func(kx)*func(wt) is not like traveling wave current,
func(kx +/- wt). Since standing wave current phase is devoid of
phase information, its phase cannot be used to determine the phase
shift through a coil. Standing wave current phase is what W7EL
measured. He drew conclusions about phase from measuring the
phase of a signal devoid of any phase information. I pointed
that technical fact out to him at the time and he ignored me.
I also pointed out that the phase information was actually
embedded in the amplitude measurement as a variation of a
cosine function. He rejected that assertion with a personal

remark.

>>If you will repeat your measurements with 1/4WL added
>>to the top of the base-loaded mobile antenna, you will
>>start to understand the physics involved. The current
>>taper through a coil depends upon where in the standing
>>wave environment that the coil is installed.
>
> Then why can I measure a fixed inductor location in a dfixed antenna,
> and range from no taper at all in current to just under 1/3 reduction
> in current? Does you standing wave model explain this very repeatable
> measurement?

Of course! If you measure the current taper at a point where the standing wave current slope is near zero, you will measure near zero taper. If you measure the current taper at a point where the standing wave current slope is near maximum, you will measure lots of taper. If you measure at just the right point, you will measure current flowing into both ends of the coil at the same time. That's another thing I have asked you to explain with no response.

>>The lumped-circuit analysis fails for the typical
>>75m amateur radio mobile antenna.
>
> I disagree. Unless we want to say so does the standing wave model.

The "standing wave model" is a component of the distributed-network model which is known to work in the presence of standing waves. The lumped-circuit model is known to fail in the presence of standing waves. Quoting Dr. Corum: "There are no standing waves on a lumped element circuit component. (In fact, lumped-element circuit theory inherently employs the cosmological presupposition that the speed of light is infinite, as every EE sophmore should know. See, e.g., - "Electric Circuits", by J.W.Nilsson, Addison-Wesley, 1983, p. 3."

Dr. Corum's first sentence above means: *There are no standing waves *allowed* in a lumped element circuit model.*

> The antenna can be modelled as a series of lumped inductors with
> capacitance to the outside world just as well as any other method.

But that is not what you and W7EL have done. You have modelled it as a single coil with distributed capacitance. That approach is known to fail when the coil is longer than 15 degrees and installed in a standing wave environment.

If you use enough lumped inductors and capacitors, you have the distributed network model but with a lot more math to do.
--
73, Cecil http://www.qsl.net/w5dxp

3218. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 15:09:57 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <9HUTf.14734$bn3.8252@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62579

Hi Tom,

You may be shocked to discover this, but it is possible that my comments have been reproduced slightly out of context.

At the time, Cecil was still clinging to the notion that if someone did the measurements properly they could elicit the original phase information contained in the traveling wave components. In particular, the space and time coupling represented by the traveling wave function, cos (kz - wt), was merely hiding. He has since changed his mind, and unfortunately I seem to have become one of his quotable gurus on this topic.

A major part of the ongoing debate is the careless use of "phase" as if it has a single definition. I have counted at least five different uses in this thread, all correct in their own way, and none interchangeable.

I won't try to explain further. My level of understanding of phase and such matters is fully satisfactory for me.

73,
Gene
W4SZ

Tom Donaly wrote:
> Cecil Moore wrote:

>>
>> Gene is 100% correct and we all should be grateful for that posting.
>>
>> Neither you nor Roy have ever made a valid measurement of the
>> delay through a coil. It is admittedly a difficult measurement
>> to make directly. Ramo and Whinnery say it "is usually of
>> prohibitive difficulty".
>
>
> I think that if Gene believes that, he should redo his math.
> 73,
> Tom Donaly, KA6RUH

3219. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 15:32:26 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <e0VTf.58308$Jd.43220@newssvr25.news.prodigy.net>
Source record: 62580

Gene Fuller wrote:
> At the time, Cecil was still clinging to the notion that if someone did
> the measurements properly they could elicit the original phase
> information contained in the traveling wave components.

Sorry, Gene, you misunderstood what I was saying. That's why you
accidentally posted technical information that supported my side
of the argument without realizing it at the time. (Remember, I said
you were a genius for posting it and I thank you.)

What I previously said was: If the reflected wave could be eliminated,
as in a traveling wave antenna (like a terminated Rhombic) then
we could measure the actual delay through a loading coil using
the forward traveling wave, the only wave left in the system.

Here's one leg of a terminated Rhombic:

source------------////////------------------load
coil

When I said the delay through a coil could be measured using a
traveling wave, this is what I had in mind.
--
73, Cecil http://www.qsl.net/w5dxp

3220. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 16:00:07 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <bqVTf.14839$bn3.13552@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62581

Cecil,

Sorry, I am not telepathic. I merely accepted you at your written word,
which appears to be of little worth.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> At the time, Cecil was still clinging to the notion that if someone
>> did the measurements properly they could elicit the original phase
>> information contained in the traveling wave components.
>
>
> Sorry, Gene, you misunderstood what I was saying. That's why you
> accidentally posted technical information that supported my side
> of the argument without realizing it at the time. (Remember, I said
> you were a genius for posting it and I thank you.)
>
> What I previously said was: If the reflected wave could be eliminated,
> as in a traveling wave antenna (like a terminated Rhombic) then
> we could measure the actual delay through a loading coil using
> the forward traveling wave, the only wave left in the system.
>
> Here's one leg of a terminated Rhombic:
>
> source------------////////-----------------load
> coil
>
> When I said the delay through a coil could be measured using a
> traveling wave, this is what I had in mind.

3221. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 16:50:41 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <B9WTf.2502$4L1.202@newssvr11.news.prodigy.com>
Source record: 62582

Gene Fuller wrote:
> Sorry, I am not telepathic. I merely accepted you at your written word,
> which appears to be of little worth.

I am often thinking faster than I can type and wind up not
expressing myself very well. This time, your misunderstanding
worked out to my advantage because it prompted you to post
some technical facts in rebuttal to what you assumed I said.
Your and Tom Donaly's technical facts were instrumental in
getting my point across and I thank you both for that. You
two seem to be the only ones posting who understand the
physics implication of func(kx)*func(wt) Vs func(kx +/- wt).
Thanks again.
--
73, Cecil http://www.qsl.net/w5dxp

3222. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 16:58:25 UTC
From: richardharrison@webtv.net
Message-ID: <18781-442030B1-2232@storefull-3252.bay.webtv.net>
Source record: 62583

Gene, W4SZ wrote:
"A major part of the ongoing debate is careless use of "phase" as if it has a single definition."

If Gene has counted at least five different uses in this thread, what are they?

Phase is defined as 1) The angular relationship between current and voltage in alternating-current (a-c) circuits. 2) The number of separate voltage waves in a commercial a-c supply such as single-phase, three-phase, etc. 3) The time that has elapsed measured from some origin as a frection of one complete period of a periodic function.

I don`t think the problem in the debate is that the participants don`t know the circumference of a circle is 2 pi radians or 360-degrees, or that 360-degrees equals a complete period or one wavelength.

The problem is that some participants don`t admit their mistakes and hope they are unnoticed or can be hidden by plenty of nonsense. J.J. Rousseau swore to consecrate his life to the truth. So did Lucy Ball, but she recommended fibbing about one`s age. It is hard to keep a vow to be truthful but it is good for the environment.

Too many here struggle for status by hook or crook and fib when the truth would work better.

Best regards, Richard Harrison, KB5WZI

3223. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:12:18 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <3ic022t9cnthfs6fqf5tcqam40qm8s8bp7@4ax.com>
Source record: 62584

On Tue, 21 Mar 2006 06:51:16 -0700, jimbo <jimbo62@spamex.com> wrote:

>In other words, is an antenna an antenna or is an
>antenna and it's installation an antenna?

Hi jimbo

The second, the wire you call an antenna, its method of feed, and its environment are the radiator. With care, it may work straight out of the box, but your numbers already offer a different story; thus the question becomes "what constitutes care?"

>It would seem to me that if the antenna is tuned and works in my shop
>it should work in the attic. Otherwise, how do "store bought" antennas
>work?

The market for antennas destined to be put in an attic is very small, hence you see very few for sale.

73's
Richard Clark, KB7QHC

3224. i need help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:29:11 UTC
From: zabad <sethilicious@gmail.com>
Message-ID: <1142962151.940082.139270@i40g2000cwc.googlegroups.com>
Source record: 62585

hi,
am seth and a new member to this group, what i want is to create my
own vt antenna but have no ideal on it. am asking if you can help me
solve this.
thanx you.

3225. Re: 2.4ghz inverted V?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:32:06 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ucd022186018hhlgmaeus0l2gqp344kceq@4ax.com>
Source record: 62586

On 21 Mar 2006 05:53:32 -0800, "KG0WX" <kg0wx@yahoo.com> wrote:

>Will the classic inverted V work on 2.4ghz (802.11b/g WiFi)?

Hi Ken,

Antennas are classically scalable.

>I made each leg on the two antennas 30.5mm long. The coax
>runs straight down from the feed points about 4" then snakes
>it's way back inside the laptop. The whole shebang is just taped
>to the back of the laptop.
>
>Will this work? Any problems? What about gain?

Gain? Hope you are expecting anymore than from a classic inverted V.
Problems? The usual like common mode - consult how to build a choked
feed.

Would you likely notice any problems if you built your inverted V to
your size? Probably not. If you did, it is more likely a problem of
not enough power/sensitivity, Fresnel issues, or poor sight lines.

73's
Richard Clark, KB7QHC

3226. Re: i need help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:35:53 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <67e0221ientscsog6r27f6jl1o3vtuv8cv@4ax.com>
Source record: 62588

On 21 Mar 2006 09:29:11 -0800, "zabad" <sethilicious@gmail.com> wrote:

>hi,
> am seth and a new member to this group, what i want is to create my
>own vt antenna but have no ideal on it. am asking if you can help me
>solve this.
> thanx you.

Hi OM,

The solution to your problem is found in describing your problem. You
need to provide more information:
What is the land like around you?
What is the land like between you and your station?
How high can you put the antenna?
How far away is the station?

73's
Richard Clark, KB7QHC

3227. Re: i need help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:36:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <rQWTf.2520$4L1.2314@newssvr11.news.prodigy.com>
Source record: 62587

zabad wrote:
> am seth and a new member to this group, what i want is to create my
> own vt antenna but have no ideal on it. am asking if you can help me
> solve this.

What are the limitations and specifications that
the antenna must meet?
--
73, Cecil http://www.qsl.net/w5dxp

3228. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 17:41:07 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <afe022dicr157ve8ul98dr02uh6pdnmmvf@4ax.com>
Source record: 62589

On Tue, 21 Mar 2006 10:58:25 -0600, richardharrison@webtv.net (Richard Harrison) wrote:

>Too many here struggle for status by hook or crook and fib when the
>truth would work better.

Hi Richard,

Adding to the 5 ways to spell phase, we could add to your list to fill out the 7 deadly sins.

Anyway, it seems one other use of "phase" appears to be in the 90ï¿½ and that part missing and presumed taken up by the coil. Who knows, the landscape is littered with fulminations as you've noted and all have been pressed into service.

73's
Richard Clark, KB7QHC

3229. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 18:15:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <6pXTf.62045$dW3.30392@newssvr21.news.prodigy.com>
Source record: 62590

Richard Clark wrote:
> Anyway, it seems one other use of "phase" appears to be in the 90ï¿½ and
> that part missing and presumed taken up by the coil.

Hopefully, some of the myths and old wives' tales will be
dispelled by my updated web page.
--
73, Cecil http://www.qsl.net/w5dxp/current.htm

3230. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 18:45:17 UTC
From: w8ji@akorn.net
Message-ID: <1142960610.214659.20390@i40g2000cwc.googlegroups.com>
Source record: 62591

Cecil Moore wrote:
> You are silent on the subject of how the lumped-circuit model
> explains more current at the top of the coil than exists at
> the bottom of the coil. Please share that knowledge with us.

It's really very simple. It functions as a series of L or T networks
with series inductance and shunt capacitance. There isn't anything new
or novel about this.

> > I think I've done a good job of explaining things, and I've made
> > measurements and posted results.
>
> Have you made measurements with 1/4WL added to the top of
> a mobile antenna?

No, because it is outside the boundary of the antenna being discussed.
We have been talking about short loaded antennas. Not full sized
antennas, not inductors that are nearly self-resonant (tesla coils), or
antennas with distributed loading (helical antennas).

That's an entirely different topic.

>Will you believe your measurements when
> you measure more current "flowing" into the bottom of the
> coil than out of the top of the coil?

If the inductor is nearly self-resonant or in a mode where flux
coupling is low compared to termination impedance, certainly odd things
can happen. RF plate chokes commonly go into modes like that when they
have large inductance to cover the bottom of HF, and have to function
at upper HF also. None of this is rocket science require standing wave
analysis.

As a matter of fact at the first series resonance an RF plate choke can
be accurately analyzed as a pair of back-to-back L networks.

This stuff really isn't new or fascinating Cecil.

> It has been proven beyond a reasonable doubt that standing wave
> current, func(kx)*func(wt) is not like traveling wave current,
> func(kx +/- wt).

So what?

The issue was actual current flowing, not reflected wave current that
only would be a factor in a transient condition.

It almost seems like you are claiming we cannot measure the current causing loss or causing radiation because of "standing waves". That's nonsense of course, and I'm sure most people realize it.

Most people probably understand a current transformer will indeed measure current that causes radiation and heat loss.

> > Then why can I measure a fixed inductor location in a dfixed antenna,
> > and range from no taper at all in current to just under 1/3 reduction
> > in current? Does you standing wave model explain this very repeatable
> > measurement?
>
> Of course! If you measure the current taper at a point where the
> standing wave current slope is near zero, you will measure near
> zero taper. If you measure the current taper at a point where
> the standing wave current slope is near maximum, you will measure
> lots of taper. If you measure at just the right point, you will
> measure current flowing into both ends of the coil at the same
> time. That's another thing I have asked you to explain with no
> response.

I can't explain a problem that exists only in your mind.

73 Tom

3231. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 19:39:09 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <xDYTf.46236$2O6.6037@newssvr12.news.prodigy.com>
Source record: 62592

Gene Fuller wrote:
> Hi Tom,
>
> You may be shocked to discover this, but it is possible that my comments
> have been reproduced slightly out of context.
>
> At the time, Cecil was still clinging to the notion that if someone did
> the measurements properly they could elicit the original phase
> information contained in the traveling wave components. In particular,
> the space and time coupling represented by the traveling wave function,
> cos (kz - wt), was merely hiding. He has since changed his mind, and
> unfortunately I seem to have become one of his quotable gurus on this
> topic.
>
> A major part of the ongoing debate is the careless use of "phase" as if
> it has a single definition. I have counted at least five different uses
> in this thread, all correct in their own way, and none interchangeable.
>
> I won't try to explain further. My level of understanding of phase and
> such matters is fully satisfactory for me.
>
> 73,
> Gene
> W4SZ
>
> Tom Donaly wrote:
>
>> Cecil Moore wrote:
>
>
>>>
>>> Gene is 100% correct and we all should be grateful for that posting.
>>>
>>> Neither you nor Roy have ever made a valid measurement of the
>>> delay through a coil. It is admittedly a difficult measurement
>>> to make directly. Ramo and Whinnery say it "is usually of
>>> prohibitive difficulty".
>>
>>
>>
>> I think that if Gene believes that, he should redo his math.
>> 73,
>> Tom Donaly, KA6RUH

You're right, Gene, I'm shocked! shocked! to learn that Cecil might distort anything anyone might write. I never for a moment, though, thought there
was anything wrong with your understanding. It was Cecil's understanding of your understanding that was in doubt.
73,
Tom Donaly, KA6RUH

3232. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 19:40:54 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <aFYTf.62056$dW3.15100@newssvr21.news.prodigy.com>
Source record: 62593

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>
>>You are silent on the subject of how the lumped-circuit model
>>explains more current at the top of the coil than exists at
>>the bottom of the coil. Please share that knowledge with us.
>
> It's really very simple. It functions as a series of L or T networks
> with series inductance and shunt capacitance. There isn't anything new
> or novel about this.

Yes, there is. If you have to resort to multiple series-Ls
and multiple series-Cs, then you are having to resort to the
DISTRIBUTED NETWORK MODEL which is what I have been telling
you for years.

> No, because it is outside the boundary of the antenna being discussed.

Heaven forbid that we discuss anything outside your super
narrow boundary conditions. Tom, there is a world of laws
of physics outside your narrow boundaries and you were even
wrong inside your own narrow boundaries. The delay through a
coil is fixed by frequency and does not depend upon the
electrical length of the antenna being 1/4WL (or 1/2WL).

Please see: http://www.qsl.net/w5dxp/current.htm

> That's an entirely different topic.

Sorry, the laws of physics work no matter what the topic.
In TX and LA, what you are doing it is called "crawfishing".
When a crawfish feels threatened, it swiftly tucks tail and
runs for the nearest cover. That's exactly what you are doing.
Don't you guys have crawfish in GA?

> If the inductor is nearly self-resonant or in a mode where flux
> coupling is low compared to termination impedance, certainly odd things
> can happen.

No, they are not ODD! They are the laws of physics. The fact
that you think they are odd just shows your ignorance of those
laws of physics. You can't seem to climb out of that bottomless
lumped-circuit hole in which you live.

>>It has been proven beyond a reasonable doubt that standing wave
>>current, func(kx)*func(wt) is not like traveling wave current,
>>func(kx +/- wt).

>
> So what?

Spoken like a member of the unwashed masses whom you are trying
to snow. Before you embarass yourself any more, please ask Gene
and Tom what that means in reality. They are on your emotional
side but I doubt they will choose to support your technical
ignorance. I assume you have read, "The Emperor's New Clothes"?
Tom, sad to say, you have no clothes.

> The issue was actual current flowing, not reflected wave current that
> only would be a factor in a transient condition.

Sorry, Tom, reflected current is a reality in a *standing wave* antenna.
Why do you think they call them "standing wave antennas"? To imply
that standing waves exist on a standing wave antenna only during
a transient condition is, well, pathetic. This illustrates, better
than anything else, why you are confused.

> It almost seems like you are claiming we cannot measure the current
> causing loss or causing radiation because of "standing waves". That's
> nonsense of course, and I'm sure most people realize it.

What I am claiming is that the standing wave current phase doesn't
contain any phase information. Gene and Tom have agreed. Why are
you disagreeing with all of us?

> I can't explain a problem that exists only in your mind.

The problem exists in reality and has been documented through the
years over the past century by brilliant engineers. What is hard
to explain is a solution that exists only in the mind of W8JI and
nowhere else.
--
73, Cecil http://www.qsl.net/w5dxp

3233. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 19:49:57 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <FNYTf.62057$dW3.7747@newssvr21.news.prodigy.com>
Source record: 62594

Tom Donaly wrote:
> I never for a moment, though,
> thought there was anything wrong with your understanding.

Tom, are you retracting what you posted? If so, just come right out and say so. Otherwise, you are going to have to live with the reality that what you posted agrees with my side of the argument and disagrees with W8JI and W7EL. Both of you guys say there is no phase information left in the measured phase of the standing wave current. Do you wish to retract your statements? Since W7EL measured the phase of the standing wave current and drew illogical conclusions from that measurement, are you guys going to support W7EL's conclusion or support the technical facts that you posted previously? Please choose.

Seems to me you are caught between supporting the irrationality of a friend or the laws of physics. Please choose the technically correct side. Ham Radio will be better served by that decision.
--
73, Cecil http://www.qsl.net/w5dxp

3234. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 20:23:26 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <8kn022t0nfisl3qaba3e0cd787mmsgbjv2@4ax.com>
Source record: 62595

On Tue, 21 Mar 2006 19:49:57 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>are you guys going to support W7EL's conclusion
are tears about to follow?
>Please choose.
sounds like "The Secret Storm"

Too bad newsgroups aren't accompanied to the strains of the Hammond
organ - it could sell more soap or laxatives than theory.

3235. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 20:53:30 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <eJZTf.46249$2O6.6482@newssvr12.news.prodigy.com>
Source record: 62596

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> I never for a moment, though, thought there was anything wrong with
>> your understanding.
>
>
> Tom, are you retracting what you posted? If so, just come right out
> and say so. Otherwise, you are going to have to live with the reality
> that what you posted agrees with my side of the argument and disagrees
> with W8JI and W7EL. Both of you guys say there is no phase information
> left in the measured phase of the standing wave current. Do you wish
> to retract your statements? Since W7EL measured the phase of the
> standing wave current and drew illogical conclusions from that
> measurement, are you guys going to support W7EL's conclusion or
> support the technical facts that you posted previously? Please choose.
>
> Seems to me you are caught between supporting the irrationality of
> a friend or the laws of physics. Please choose the technically
> correct side. Ham Radio will be better served by that decision.

Cecil, the cork has popped. You've finally succumbed to fantasy and
solipsism to the point where your reason has failed utterly.
There must be something in Texas that addles the intellect. I urge you
to go climb in your old pickup, Roxinante, and drive the hell out of
there. (And remember to remove the Tom Delay bumper sticker when you
cross the border into Oklahoma.) Maybe, given time, you'll recover some
of your understanding.
73,
Tom Donaly, KA6RUH

3236. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:21:42 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <G7_Tf.3890$HW2.3623@newsread3.news.pas.earthlink.net>
Source record: 62597

Hi Michael,

Thank you for your comments! I'd be interested in trading experiences
with you on the OCF topic, either here or direct. Did you make one
or buy one?

I have interleaved some other responses below...

73, Ed

"Michael Coslo" <mjc5@psu.edu> wrote in message
news:dvmot3$1nle$1@f04n12.cac.psu.edu...
> Old Ed wrote:
> > Reg,
> >
> > The type of antenna you describe is very useful and popular.
> >
> > However, your assertion is much too sweeping as a generalization.
> > In no particular order, here are some caveats:
> > 1. The qualifier "best" is largely meaningless, absent an agreed
> > set of weighted criteria for "goodness." (How important is:
> > size? weight? cost? visual profile? bandwidth? instant QSY?
> > gain? pattern? low-band performance vs. high-band performance?
> > power-handling capacity? need for tuner? etc., etc., etc.)
>
> I'm always hesitant to use words like "best" for all the reasons you
> state, but I think that Reg qualified things pretty well.

I think Reg's ONLY qualifiers were "all round, all band" (presumably
meaning 80 thru 10). To me, that description falls well short of the
mark, as "qualifiers."

> Within the
> qualifications of all band dipoles, the ladder-line fed general dipole
> is pretty darn hard to beat. I recommend them to any new hams that ask
> me for advice on antennas.
>
You can make a good case for this proposition. But I'm a bit puzzled
on how these qualify as A-1 newbie antennas.

First, our newbie to learn how to coddle finicky ladder line, bring it
into the shack, and make the transition to unbalanced feed. Then he/she
needs a crash course on transmatches:
1. Balanced or unbalanced design? (If unbalanced, may not work well
with this antenna; if balanced, may not work with future, coax-fed
antennas.)

2. Low or high power? (If low, may need to upgrade later.)
3. Manual or automatic? (If automatic, how interface to rig?)
4. Which brand and model? (Might Fine Junk or $quality$?)
5. New or used?
6. How do you operate the transmatch?

If our newbie wants some power-handling capability, and plans
to buy it new, he/she will need an extra 500 to 700 USD and more
space on the desk.

Re Reg's reference to a choke balun: I've been looking for good quality,
commercial choke baluns equipped with SO-239 inputs and outputs.
So far, I haven't found any; and I haven't been quite motivated enough
to make one. What should our newbie do to get one, if needed?

> My rationale is that most new hams these days buy rigs that are
> all-band, transistorized units.These units are also sensitive to
> mismatches between antenna and rig. Most new hams are not antenna gurus
> either. So here is an antenna that will allow them to get on the air
> without a lot of fussing. The only real measurement caveats are some
> lengths that you don't want to use.
>
I can't quite see how slogging thru all the above is going to be easier for
a newbie than buying a Buckmaster OCF or basic trap dipole, buying a
ready-made coax jumper of the required length, and then doing plug-
and-play with the (typical) rig's built-in auto-tuner. But it probably
would
be more educational.

> So we end up with an antenna that allows the newbie to get on the air,
> allows them to learn some stuff by twiddling knobs and such, then when
> they have a bit more experience, they can tackle that more "advanced
> antenna" with it's more exacting design, trimming , and measurements.
>
I'm having a hard time figuring out what antenna type(s) would be "more
advanced" than the random-length-doublet-with-outboard-ATU, and
yet require more fiddling.

But I will grant you this: IF someone decides from the get-go that they
want a glitzy transmatch at their operating position--whether they need
it or not--then the balanced-feeder doublet makes pretty good sense.
This would be especially true if there wasn't enough space for something
like a Buckmaster OCF, but there was enough space for (say) an 88'
doublet.
>
>
> > 2. A good case can be made that choosing the "right" length is
> > "better" than a random length, within this type.
> > 3. An excellent case can be made that center-fed is NOT always
> > the "best" option, within this type.
> > 4. I'll let the fans of this antenna type chime in with why they
> > prefer balanced tuners and/or tuned feeders to the use of an

> > unbalanced tuner... if they want to. (I use more tailored
antennas,
> > and don't need a tuner of any kind, most of the time.)
>
> As I do now. I've really been smitten with my OCF dipole, fed with
> Coax, because in no small part, the feedpoint drops straight down to my
> shack. That coupled with an automatic tuner in my radio , allowing me to
> "plug and play.
>
> But I still strongly urge newcomers to put up one of those ladder line
> dipoles for the experience. They work okay, too! 8^)
>
> >
> > "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
> > news:dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
> >> The best, all round, all band, antenna is a high centre-fed dipole of
> >> no particular length, fed with an open-wire feedline of no particular
> >> length or impedance, all the way to the shack, used with a choke-balun
> >> and an unbalanced tuner.
> >>
> >> It is good down to the frequency at which the dipole is about
> >> 1/3-wavelength long.
> >>
> >> Simplicity = efficiency.
> >>
> >> Once tried you will never return to anything else.
> >> ----
> >> Reg.
> >>
> >>
> >
> >

3237. Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:23:26 UTC
From: tucker@conninc.com
Message-ID: <1142976206.750445.110100@t31g2000cwb.googlegroups.com>
Source record: 62598

I picked up a Oct 1973 issue of 73 & noticed a interesting article on
a mast mounted rotatible very
hig gain 435mhz antenna, cheap and easy to built. Ive been trying to
build a high gain antenna to
recieve ATV in the 903-928 band & seems this maybe the one. The claims
for
this antenna seem streached abit, they claim 26dB gain from just wire
and a few resistors
and claim its 435mhz design can work up to 890mhz, theres even a quad
rhombic shown
also. Sounds to good to be true, so i wandering if anyone has had any
experience with
actually building & using one of these antennas. I would like to build
some kind of high gain recieve
only antenna to see if its possible to get a decent signal from some
of the ATV repeaters.
Seems here in western N.C. the ATV activity is located mostly in this
located band.
Thx N4aeq

3238. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:29:44 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <qbadnWFiCKHV7b3ZRVn-jg@comcast.com>
Source record: 62599

Isn't it about time this thread went to sleep for a long long long long time??

New subject for possible discussion: "How does the Helix on Hamsticks contribute to improved radiation efficiency?"

3239. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:35:57 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <s2s022lrmb8o93pcgelj94l4jvpgh8u4qb@4ax.com>
Source record: 62600

On 21 Mar 2006 13:23:26 -0800, tucker@conninc.com wrote:

>The claims
>for
>this antenna seem streached abit, they claim 26dB gain from just wire
>and a few resistors
>and claim its 435mhz design can work up to 890mhz, theres even a quad
>rhombic shown
>also. Sounds to good to be true, so i wandering if anyone has had any
>experience with
>actually building & using one of these antennas. I would like to build
>some kind of high gain recieve
> only antenna to see if its possible to get a decent signal from some
>of the ATV repeaters.

Hi OM,

It's as good as any other.... Good being highly qualified, especially
as the construction details are so shy of description here. Barring
those details, rhombics are not a mystery.

If it works on the 440 Band, you can scale it down for the 900 band if
you want it shorter, or just use the instructions provided. How good
it performs remains to be tested. You would have to test anyway to
confirm any antenna claim for gain.

73's
Richard Clark, KB7QHC

3240. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:53:24 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <oB_Tf.2681$4L1.2124@newssvr11.news.prodigy.com>
Source record: 62602

Tom Donaly wrote:
> Cecil, the cork has popped. You've finally succumbed to fantasy and
> solipsism to the point where your reason has failed utterly.
> There must be something in Texas that addles the intellect. I urge you
> to go climb in your old pickup, Roxinante, and drive the hell out of
> there. (And remember to remove the Tom Delay bumper sticker when you
> cross the border into Oklahoma.) Maybe, given time, you'll recover some
> of your understanding.

The technical content of your postings supports my side of the
argument, Tom. The emotional side of your argument seems to
support the other side. Which do you want us to believe?
--
73, Cecil http://www.qsl.net/w5dxp

3241. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:53:57 UTC
From: Stargatesg1 <nospam@here.net>
Message-ID: <VB_Tf.3132$4N1.1366@trnddc06>
Source record: 62601

Also I would check to make sure the gain is listed as 26 DBd instead of DBi.
Back in the day, allot of companies inflated their specs by stating the
DBi gain instead of DBd.
DBi being gain over an isotropic and DBd being gain over a dipole.

--
RoD
KD0XX
PG-6-29404

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:s2s022lrmb8o93pcgelj94l4jvpgh8u4qb@4ax.com...
> On 21 Mar 2006 13:23:26 -0800, tucker@conninc.com wrote:
>
> >The claims
> >for
> >this antenna seem streached abit, they claim 26dB gain from just wire
> >and a few resistors
> >and claim its 435mhz design can work up to 890mhz, theres even a quad
> >rhombic shown
> >also. Sounds to good to be true, so i wandering if anyone has had any
> >experience with
> >actually building & using one of these antennas. I would like to build
> >some kind of high gain recieve
> > only antenna to see if its possible to get a decent signal from some
> >of the ATV repeaters.
>
> Hi OM,
>
> It's as good as any other.... Good being highly qualified, especially
> as the construction details are so shy of description here. Barring
> those details, rhombics are not a mystery.
>
> If it works on the 440 Band, you can scale it down for the 900 band if
> you want it shorter, or just use the instructions provided. How good
> it performs remains to be tested. You would have to test anyway to
> confirm any antenna claim for gain.
>
> 73's
> Richard Clark, KB7QHC

3242. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 21:59:25 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <kwl+gel9cHIEFAsB@ifwtech.co.uk>
Source record: 62429

wrote:
> I picked up a Oct 1973 issue of 73 & noticed a interesting article on
>a mast mounted rotatible very
>hig gain 435mhz antenna, cheap and easy to built. Ive been trying to
>build a high gain antenna to
>recieve ATV in the 903-928 band & seems this maybe the one. The claims
>for
>this antenna seem streached abit, they claim 26dB gain from just wire
>and a few resistors
>and claim its 435mhz design can work up to 890mhz, theres even a quad
>rhombic shown
>also. Sounds to good to be true,

You guessed it. This antenna has been thoroughly debunked in the 33
years since the original article.

I don't have detailed references, but the story goes that ground gain of
6dB was added on *twice* to the claimed original free-space gain
figure... which was optimistic in the first place.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3243. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 22:06:02 UTC
From: Tom P Randall KB2SMS <KB2SMS@hotmale.com>
Message-ID: <442078ca$0$9579$6d36acad@titian.nntpserver.com>
Source record: 62603

"gb" <onw9mapsgb@no.arrl.spam.net> wrote in
news:7qednZwzx5xX5oDZnZ2dnUVZ_sOdnZ2d@comcast.com:

>> A good photos would help ..
>
Like this?

http://i1.tinypic.com/rwi885.jpg
*** Free account sponsored by SecureIX.com ***
*** Encrypt your Internet usage with a free VPN account from http://www.SecureIX.com ***

3244. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 22:12:19 UTC
From: kb9rqz@mark_morgan.com
Message-ID: <ugu0229sumptf07ceqcqvi5mbi6q5e8fl4@4ax.com>
Source record: 62625

On 21 Mar 2006 22:06:02 GMT, Tom P Randall KB2SMS <KB2SMS@hotmale.com>
wrote:

>"gb" <onw9mapsgb@no.arrl.spam.net> wrote in
>news:7qednZwzx5xX5oDZnZ2dnUVZ_sOdnZ2d@comcast.com:
>
>>> A good photos would help ..
>>
>Like this?
>
>http://i1.tinypic.com/rwi885.jpg

>
WTF? All I see is a pic of a slob!

Usenet Zone Free Binaries Usenet Server
More than 140,000 groups
Unlimited download
http://www.usenetzone.com to open account

3245. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 22:34:12 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <1220vrc6h9tqece@corp.supernews.com>
Source record: 62604

Stargatesg1 wrote:
> Also I would check to make sure the gain is listed as 26 DBd instead of DBi.
> Back in the day, allot of companies inflated their specs by stating the
> DBi gain instead of DBd.
> DBi being gain over an isotropic and DBd being gain over a dipole.
>
At 26Db there isn't enough difference between dipole and isotropic to
matter.

Dave WD9BDZ

3246. Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 22:45:37 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <lm%Tf.13297$dy4.2180@news-server.bigpond.net.au>
Source record: 62605

Hi,

What would anyone recommend for measuring SWR on a system that has a low power transmitter (20mW) ?

My meter has lowest range of 3W FSD. I do have a digital power meter and directional coupler, would it be best to manually measure fwd power and reverse pwr and calculate SWR ?

Thanks in Advance

Regards

David

3247. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 22:50:50 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12210qejjsk1k4b@corp.supernews.com>
Source record: 62606

To get 26 dB over a dipole would require rhombic leg lengths of about 125 wavelengths, or about 275 feet at 450 MHz. The overall length would be around 500 feet. The beamwidth would be so narrow you'd have difficulty getting it aimed toward one station, even if you were able to turn it somehow.

Roy Lewallen, W7EL

David G. Nagel wrote:
> Stargatesg1 wrote:
>> Also I would check to make sure the gain is listed as 26 DBd instead
>> of DBi.
>> Back in the day, allot of companies inflated their specs by
>> stating the
>> DBi gain instead of DBd.
>> DBi being gain over an isotropic and DBd being gain over a dipole.
>>
> At 26Db there isn't enough difference between dipole and isotropic to
> matter.
>
> Dave WD9BDZ

3248. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:06:52 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <gG%Tf.15802$bn3.9861@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62607

Hi Richard,

I am not going to spend any more time on this topic, but I will answer the "5 phase" question. I am not going to try for extreme precision, so I suspect the nit-pickers will have a field day.

1. The classic relationship between current and voltage in a reactive environment.

2. The time and space connection in a traveling wave, the "kz-wt" term.

3. The amplitude shape factor in a standing wave, the "kz" term.

4. Fixed offsets that effectively show different starting times for waves. For example, "kz-wt" vs. "kz-wt-d".

5. The sign reversal every half-wave on a long antenna. This is merely a reflection of the periodic nature of a cosine function, but it is often called a "phase reversal".

There are more, I am sure, but these are the ones that I specifically saw in the first 1000 or so postings in this thread.

73,
Gene
W4SZ

Richard Harrison wrote:
> Gene, W4SZ wrote:
> "A major part of the ongoing debate is careless use of "phase" as if it
> has a single definition."
>
> If Gene has counted at least five different uses in this thread, what
> are they?
>
> Phase is defined as 1) The angular relationship between current and
> voltage in alternating-current (a-c) circuits. 2) The number of separate
> voltage waves in a commercial a-c supply such as single-phase,
> three-phase, etc. 3) The time that has elapsed measured from some origin
> as a frection of one complete period of a periodic function.
>
> I don`t think the problem in the debate is that the participants don`t
> know the circumference of a circle is 2 pi radians or 360-degrees, or
> that 360-degrees equals a complete period or one wavelength.
>
> The problem is that some participants don`t admit their mistakes and
> hope they are unnoticed or can be hidden by plenty of nonsense. J.J.

> Rousseau swore to consecrate his life to the truth. So did Lucy Ball,
> but she recommended fibbing about one`s age. It is hard to keep a vow to
> be truthful but it is good for the environment.
>
> Too many here struggle for status by hook or crook and fib when the
> truth would work better.
>
> Best regards, Richard Harrison, KB5WZI
>

3249. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:21:24 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <DtWdnXSuW7zxF73ZnZ2dnUVZ_v-dnZ2d@web-ster.com>
Source record: 62608

David wrote:

> Hi,
>
> What would anyone recommend for measuring SWR on a system that has a low
> power transmitter (20mW) ?
>
> My meter has lowest range of 3W FSD. I do have a digital power meter and
> directional coupler, would it be best to manually measure fwd power and
> reverse pwr and calculate SWR ?
>
> Thanks in Advance
>
> Regards
>
> David

20mW is definitely pushing it. QST published a QRP SWR meter at one point that might go down that far with work. I use an RF noise bridge and a receiver for establishing feedpoint impedance -- that may be the way you'll want to go.

IIRC the bridge design came out of "Solid State Design for the Radio Amateur" by Hayward and DeMaw. I think it's basically what MFJ sells, only they wrap it all with a fancy computerized controller.

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

Posting from Google? See http://cfaj.freeshell.org/google/

3250. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:28:51 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <T_%Tf.62107$dW3.52401@newssvr21.news.prodigy.com>
Source record: 62609

Gene Fuller wrote:
> 1. The classic relationship between current and voltage in a reactive
> environment.

Very difficult to measure on an antenna.

> 2. The time and space connection in a traveling wave, the "kz-wt" term.

Can be used to measure the delay through a loading coil.

> 3. The amplitude shape factor in a standing wave, the "kz" term.

Can be used to roughly estimate the delay through a loading coil.
The "wt" term of the standing wave cannot be used to measure
the delay through a loading coil.

> 4. Fixed offsets that effectively show different starting times for
> waves. For example, "kz-wt" vs. "kz-wt-d".

Or the difference between the phase of a traveling wave entering
a loading coil and that traveling wave exiting the loading coil.

> 5. The sign reversal every half-wave on a long antenna. This is merely a
> reflection of the periodic nature of a cosine function, but it is often
> called a "phase reversal".

The same thing happens in a transmission line with reflections.
--
73, Cecil http://www.qsl.net/w5dxp

3251. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:33:32 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <g30Uf.62109$dW3.27078@newssvr21.news.prodigy.com>
Source record: 62610

David wrote:
> My meter has lowest range of 3W FSD. I do have a digital power meter and
> directional coupler, would it be best to manually measure fwd power and
> reverse pwr and calculate SWR ?

On the upstream side of the diodes (if any) in the directional
coupler, you might be able to obtain AC measurements proportional
to the forward and reflected power, depending upon the sensitivity
of your meter. It could also be done using an o'scope.
--
73, Cecil http://www.qsl.net/w5dxp

3252. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:48:19 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <7h0Uf.56741$H71.4420@newssvr13.news.prodigy.com>
Source record: 62611

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> Cecil, the cork has popped. You've finally succumbed to fantasy and
>> solipsism to the point where your reason has failed utterly.
>> There must be something in Texas that addles the intellect. I urge you
>> to go climb in your old pickup, Roxinante, and drive the hell out of
>> there. (And remember to remove the Tom Delay bumper sticker when you
>> cross the border into Oklahoma.) Maybe, given time, you'll recover
>> some of your understanding.
>
>
> The technical content of your postings supports my side of the
> argument, Tom. The emotional side of your argument seems to
> support the other side. Which do you want us to believe?

Cecil, this reminds me of an old Groucho line that goes something
like, "Who are you going to believe, me or what you see with your own
eyes?" You're expecting me to believe what you thought up in your head
over what Tom Rauch and Roy saw with their own eyes. This whole thing
boils down to an engineering question, anyway, which is, is it possible
to engineer a loading coil to be small enough at the lower end of the
HF spectrum so that it can be modeled using network analysis? Tom says
he can do it, and he's posted the results of his research efforts on
the web. He hasn't had to rely on sophistry, selective quotations,
huge numbers of irrational posts, threats, unproven theories, or
anything other than numbers derived through carefully done
experimentation to make his point. When you can do likewise,
Cecil, you won't have to act like a lunatic to make your point,
the numbers will do it for you, and the rest of us will be spared
the spectacle of watching you defending, with your last breath,
something you aren't willing to take the time to even fully understand.
73,
Tom Donaly, KA6RUH

3253. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-21 23:58:35 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvq3vb$23a$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62612

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:g30Uf.62109$dW3.27078@newssvr21.news.prodigy.com...
> David wrote:
> > My meter has lowest range of 3W FSD. I do have a digital power
meter and
> > directional coupler, would it be best to manually measure fwd
power and
> > reverse pwr and calculate SWR ?
>
> On the upstream side of the diodes (if any) in the directional
> coupler, you might be able to obtain AC measurements proportional
> to the forward and reflected power, depending upon the sensitivity
> of your meter. It could also be done using an o'scope.
> --
> 73, Cecil http://www.qsl.net/w5dxp
==========

And having found SWR what would he do with it - calculate forward and
reflected power ?

;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o) ;o)
;o) ;o) ;o)

3254. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:04:34 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <jtg6f3-ldq.ln1@p400bob.personal.cox.net>
Source record: 62613

This gain figure sounds very much like the 144MMz EME double rhombic
that was in the ARRL handbook for years. As I remember it was "attacked"
some years ago for claiming such a high gain.

I built one for 70cm some years ago and the results were disappointing,
or rather not as good as a 22 el loop quad. I didnt do much
experimenting with it sorry.

Cheers Bob VK2YQA

tucker@conninc.com wrote:
>
> I picked up a Oct 1973 issue of 73 & noticed a interesting article on
> a mast mounted rotatible very

3255. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:11:57 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <hD0Uf.13361$dy4.5357@news-server.bigpond.net.au>
Source record: 62614

I suppose then I then should just measure forward power from the incident port and then tune the antenna while monitoring power on the reflected port (of the directional coupler) for min. reflected power.

I should have also mentioned frequency is 900 MHz.

3256. Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:17:43 UTC
From: Howard W3CQH <hgorden@adelphia.net>
Message-ID: <zPGdnR_G5aU_Cr3ZRVn-gA@adelphia.com>
Source record: 62615

Question - Is the polarity of the antenna based on the feed point?

73's

3257. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:19:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <YJ0Uf.62120$dW3.14562@newssvr21.news.prodigy.com>
Source record: 62616

Tom Donaly wrote:
> You're expecting me to believe what you thought up in your head
> over what Tom Rauch and Roy saw with their own eyes.

What they saw with their own eyes is a mistake that you apparently
would never make. Roy tried to measure the delay through a loading
coil using the phase of a standing wave. As I understand what you
and Gene have said, that is impossible since the standing wave phase
doesn't contain any useful phase information.

> This whole thing
> boils down to an engineering question, anyway, which is, is it possible
> to engineer a loading coil to be small enough at the lower end of the
> HF spectrum so that it can be modeled using network analysis? Tom says
> he can do it, and he's posted the results of his research efforts on
> the web.

False, Tom has refused to use network analysis. That's the whole
problem. His lumped-circuit model assumes faster than light
propagation through every coil. His 3 nS through a 100 uH coil
is getting very close to faster than light speed.

Just today, Tom made a posting that indicates he still believes
that Func(kz)*Fun(wt) is the same thing as Func(kz +/- wt). My
measurements are the same as Tom's. Only one of the dozen or
so measurements made by everyone had the currents equal
at both ends.

Please look at Figure 3 at:

http://www.k6mhe.com/n7ws/Loaded%20antennas.htm

And please explain again how 1 amp is equal to 0.65 amps.
--
73, Cecil http://www.qsl.net/w5dxp

3258. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:28:04 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <oS0Uf.8514$vy.3052@trnddc01>
Source record: 62617

"Howard W3CQH" <hgorden@adelphia.net> wrote in message
news:zPGdnR_G5aU_Cr3ZRVn-gA@adelphia.com...
> Question - Is the polarity of the antenna based on the feed point?
>
> 73's
>Yes

3259. New Program. Transmission Line Transformers.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:33:17 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvq60d$72h$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62618

There are two transmission lines in cascade plus a load impedance.

The first line can be considered to be the main line from the
transmitter.

The second line can be considered to be an impedance matching
transformer between the first line and the antenna.

What is the impedance and length of line in the transformer if the
antenna feedpoint impedance is not purely resistive?

What are the input impedances of the two lines, R+jX ?

What percentage of transmitter power is dissipated in the two lines?
What is the overall power efficiency?

The answers can be found in new program TWOLINES.

SWR is not involved.

Download program TWOLINES from website below in a few seconds and run
immediately.
--
....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

3260. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 00:47:31 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <G71Uf.2623$6a1.323@fed1read04>
Source record: 62619

"Howard W3CQH" <hgorden@adelphia.net> wrote in message
news:zPGdnR_G5aU_Cr3ZRVn-gA@adelphia.com...
> Question - Is the polarity of the antenna based on the feed point?
>
> 73's
>

Yes -- see URL:
http://www.ham-shack.com/beam.html
--
CL -- I doubt, therefore I might be !

3261. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 01:55:52 UTC
From: tucker@conninc.com
Message-ID: <1142992552.184809.168690@i40g2000cwc.googlegroups.com>
Source record: 62620

Exactly what i wanted to know, i may hold off on this one and search for a different type high gain uhf antenna. Only problem is all the design programs i have found on the web for yagi or log perodic antennas are for 6-8 elements maximum, @ 900mhz i would like to have as many elements as a boom would support. So my next question would be where to look for a multi element beam using atleast a minimum of twelve elements?

3262. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:00:52 UTC
From: w8ji@akorn.net
Message-ID: <1142992852.235488.52000@e56g2000cwe.googlegroups.com>
Source record: 62621

tucker@conninc.com wrote:
> I picked up a Oct 1973 issue of 73 & noticed a interesting article on
> a mast mounted rotatible very
> hig gain 435mhz antenna, cheap and easy to built. Ive been trying to
> build a high gain antenna to
> recieve ATV in the 903-928 band & seems this maybe the one. The claims
> for
> this antenna seem streached abit, they claim 26dB gain from just wire
> and a few resistors

You might try modeling the antenna or rading a textbook that covers
real Rhombic antennas.

Antennas and Transmission Lines by John (jack) Kuecken is a great
place to start.

I think what you will find is that gain figure is extremely inflated.
It is unobtainable in the real world. I'd expect more like 15dBd
maximum gain if you can do almost everything perfectly, and you might
squeek another 3dB with two Rhombics in optimum configuration.
At the old VOA installations, the very large Rhombic antennas had less
gain than curtain antennas that occupied much less space.

I have a 300 foot tall support. I've been trying to model an Inverted V
or V beam with useful gain over a small Yagi without success. If
anyone has sucessfully modeled one, please let me know.

73 Tom

I've been

3263. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:04:44 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <0h2Uf.13289$bu.3519@trnddc04>
Source record: 62622

<tucker@conninc.com> wrote in message
news:1142976206.750445.110100@t31g2000cwb.googlegroups.com...
> I picked up a Oct 1973 issue of 73 & noticed a interesting article on
> a mast mounted rotatible very
> hig gain 435mhz antenna, cheap and easy to built. Ive been trying to
> build a high gain antenna to
> recieve ATV in the 903-928 band & seems this maybe the one. The claims
> for
> this antenna seem streached abit, they claim 26dB gain from just wire
> and a few resistors
> and claim its 435mhz design can work up to 890mhz, theres even a quad
> rhombic shown
> also. Sounds to good to be true, so i wandering if anyone has had any
> experience with
> actually building & using one of these antennas. I would like to build
> some kind of high gain recieve
> only antenna to see if its possible to get a decent signal from some
> of the ATV repeaters.
> Seems here in western N.C. the ATV activity is located mostly in this
> located band.
> Thx N4aeq

Hi Tucker

I had to re-look at the month that article was published to be sure it wasnt an April 1 issue.

The antenna's beamwidth, with a circular cross section, will be close to 10 degrees maximum. It is likely that a 12 foot diameter dish would be the minimum size that would provide that 26 dB Gain at 900 MHz. That gets pretty difficult to make stable when also rotateable.

I would suggest that you start with a Yagi and try it. You'll soon know if that gain is adequate. And the money spent on parts wont hurt your pocketbook. I sure wouldnt expect you to jump into antenna design with a beginning project of building a 26 dB Gain rotateable antenna.

Jerry

3264. Re: Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:07:12 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1142993232.321235.46760@j33g2000cwa.googlegroups.com>
Source record: 62623

Dan, It is a dipole antenna.

Thanks!

3265. Re: Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:08:42 UTC
From: Ron J <bigschlong@gmail.com>
Message-ID: <1142993322.516980.173120@z34g2000cwc.googlegroups.com>
Source record: 62624

Tom, can you clarify on how to take the average height of the pattern?
Also, if I keep the TX and RX antenna close, wouldn't that eliminate
the far-field effects?

Thanks!

3266. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:33:03 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <0kp6f3-1mq.ln1@p400bob.personal.cox.net>
Source record: 62426

Scaling shouldnt be an issue so start by looking at 1296MHz antennas.
You can always computer model them as well. Have a look at Mr Cebiks'
website. (http://www.cebik.com) I'd actually recommend you look at a
corner reflector. Nowhere as critical as a yagi and pretty easy to
build. Maybe even a 3D corner?

I've been wanting to try a Sterba curtain (on 900mHz) over a planar
reflector. That wouldnt be real critical either.

Cheers Bob Vk2YQA

tucker@conninc.com wrote:
>
> Exactly what i wanted to know, i may hold off on this one and search
> for a different type high gain uhf antenna. Only problem is all
> the design programs i have found on the web for yagi or log perodic
> antennas are for 6-8 elements maximum, @ 900mhz i would like to have
> as many elements as a boom would support. So my next question would be
> where to look for a multi element beam using atleast a minimum of
> twelve elements?
>

3267. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 02:36:22 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <6qp6f3-1mq.ln1@p400bob.personal.cox.net>
Source record: 62427

Yes!

Feeding at the "bottom" makes it horizontal and the "side" vertical.
There is obviously some response in the other polarity (more than a
yagi?) but I havent researched this. The square can also be a
rectangle... (Beware of feedpoint Z changes)

You can also feed the in quadrature on two adjacent corners for circular..

Cheers Bob VK2YQA

Howard W3CQH wrote:
> Question - Is the polarity of the antenna based on the feed point?
>
> 73's
>
>

3268. building a yagi

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 03:27:09 UTC
From: Leadfoot <Ledfoot02@hotmail.com>
Message-ID: <hu3Uf.7382$lb.659961@news1.epix.net>
Source record: 62428

I going to build a 11 element yagi but the problem I'm having is I can't find the aluminum rods, I was wondering if I use copper if I will still get the same Db gain.

I was thinking of another metal was to use brake line from a car that I can get in the auto parts store.

Thanks
Ledfoot

3269. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 06:15:22 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <SY5Uf.37$I%6.26@fed1read12>
Source record: 62430

"jimbo" <jimbo62@spamex.com> wrote in message
news:RZadnXHuHeVRmb3Z4p2dnA@comcast.com...
> jimbo wrote:
>
>
> Thanks for all of the advice. I have one more question. Can I tune a
> J-Pole antenna in my shop and then move it to the attic and expect the
> same performance? In other words, is an antenna an antenna or is an
> antenna and it's installation an antenna?
>
> It would seem to me that if the antenna is tuned and works in my shop
> it should work in the attic. Otherwise, how do "store bought" antennas
> work?
>
> Thanks, jimbo

I have built about twenty copper-pipe j-poles and I have found that with
five feet or so between the antenna and surroundings, the tuning doesn't
change enough to be annoying.

The copper pipe j-pole can be dropped into a pipe and hoisted into the clear
for VSWR evaluations if you really want to get gnats-assey about it.

Speaking of that, I have found that j-poles usually don't hit 1:1, even
when the low point is mid-band. However, after I get the best match,
I insert a 100 pF capacitor between the coax center pin and the antenna
and "Viola!" I stole that idea from the gamma match.

3270. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 06:44:15 UTC
From: Richard Miller <wizzard6@optusnet.com.au>
Message-ID: <4420f248$0$20115$afc38c87@news.optusnet.com.au>
Source record: 62431

I have not posted the photos of the antenna yep

--

Regards,

Richard Miller
E-mail: wizzard6@optusnet.com.au

<kb9rqz@mark_morgan.com> wrote in message
news:ugu0229sumptf07ceqcqvi5mbi6q5e8fl4@4ax.com...
> On 21 Mar 2006 22:06:02 GMT, Tom P Randall KB2SMS <KB2SMS@hotmale.com>
> wrote:
>
>>"gb" <onw9mapsgb@no.arrl.spam.net> wrote in
>>news:7qednZwzx5xX5oDZnZ2dnUVZ_sOdnZ2d@comcast.com:
>>
>>>> A good photos would help ..
>>>
>>Like this?
>>
>>http://i1.tinypic.com/rwi885.jpg
>
>>
> WTF? All I see is a pic of a slob!
> _____________________________________
> Usenet Zone Free Binaries Usenet Server
> More than 140,000 groups
> Unlimited download
> http://www.usenetzone.com to open account

3271. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 08:07:37 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <9s443VIJXQIEFA+7@ifwtech.co.uk>
Source record: 62432

Tom Donaly wrote:
> This whole thing
>boils down to an engineering question, anyway, which is, is it possible
>to engineer a loading coil to be small enough at the lower end of the
>HF spectrum so that it can be modeled using network analysis?

That situation can be called pure single-point inductive loading. It may not be totally practical, but it is still vital to this discussion.

There is an infinite range of real-life loading coils of various shapes and sizes. Pure single-point inductive loading is the limiting case that marks one end of that range. Any successful theory has GOT to get this case right - and if it can't, it fails.

Regardless of the actual method used, any correct analysis of the whole antenna MUST conclude that, for the limiting case of pure inductive loading, the voltage/current/phase relationships at the loading inductance are the SAME as those predicted by conventional circuit analysis. This limiting case is where the two kinds of analysis come together, and here they MUST agree.

That means a correct analysis for the whole antenna MUST predict zero phase shift in the current (It = I0 cos wt) between the terminals of the loading inductance. This requirement only applies for pure inductance, and only at that single point where the inductor is inserted into the antenna; but for that limiting case the requirement to join up with circuit theory is real, absolute and non-negotiable.

Let's be clear: in this context, "current" is the plain ordinary alternating current that we learned about in school: It = I0 cos wt. It is the simple back-and-forth movement of electrons (charge) past a given point.

Nobody denies that for real-life loading coils there can be a phase shift in the current from end to end, and that it will become larger as the coil becomes longer and skinnier. That isn't the question I'm addressing here. But the question of what happens when the coil shrinks down to become a single-point loading inductance is equally important: it cannot be evaded, and it is a definitive deal-breaker.

It's hard to tell for sure from the avalanche of messages, but Cecil's analysis apparently fails in the limiting case of pure inductance - or rather, he seems to deny that the test is even a valid one.

In principle there is nothing wrong with attempting a traveling-wave analysis for a loaded whip. Done correctly, it will give the right results that join up seamlessly with circuit theory as well.

It's just that Cecil has NOT done it correctly. I think there are
several reasons, and until he corrects them all, his theory will
continue to fail... and he will continue in denial of that.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3272. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 09:11:10 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122255j5m0eed84@corp.supernews.com>
Source record: 62433

Ian White GM3SEK wrote:
> . . .
> In principle there is nothing wrong with attempting a traveling-wave
> analysis for a loaded whip. Done correctly, it will give the right
> results that join up seamlessly with circuit theory as well.
> . . .

One of the tests the traveling wave analysis must pass is that the results from forward current wave excitation plus the results from reverse current wave excitation must equal the results from excitation by the sum of the two, i.e., the total current. This is required by superposition, whether the network is lumped or distributed.

And analysis based on a distributed model, as Ian says, must converge to the same results as a model with lumped components as the physical sizes of the components get very small.

Analyses of the examples using lumped models with total current have been entirely adequate to explain the observed inductor currents.

Roy Lewallen, W7EL

3273. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 09:24:46 UTC
From: w8ji@akorn.net
Message-ID: <1143019485.927955.293220@t31g2000cwb.googlegroups.com>
Source record: 62434

Roy Lewallen wrote:
> Ian White GM3SEK wrote:
> > . . .
> > In principle there is nothing wrong with attempting a traveling-wave
> > analysis for a loaded whip. Done correctly, it will give the right
> > results that join up seamlessly with circuit theory as well.
> > . . .
>
> One of the tests the traveling wave analysis must pass is that the
> results from forward current wave excitation plus the results from
> reverse current wave excitation must equal the results from excitation
> by the sum of the two, i.e., the total current. This is required by
> superposition, whether the network is lumped or distributed.

Cecil claims I'm the ONLY one who disagrees with him!

Richard C., Ian, Roy, Gene, and Tom D. also appear to not be on Cecil's
team.

73 Tom

3274. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 09:29:58 UTC
From: w8ji@akorn.net
Message-ID: <1143019798.287129.33780@z34g2000cwc.googlegroups.com>
Source record: 62435

Howard W3CQH wrote:
> Question - Is the polarity of the antenna based on the feed point?
>
> 73's

The polarization is dependent on the feed point location on the driven element, and the polarization of the drivene element. That's a unique property of full wave loop elements or crossed elements. (Polarity is the wrong word for this application.)

73 Tom

3275. Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 09:36:48 UTC
From: Deni <telegrafiste@tiscali.fr>
Message-ID: <dvr5reddg1@news.tiscali.fr>
Source record: 62436

I'm going to have a go with a 3/8 wavelength (for 160M) wire, lifted by a 2M helium balloon during the summer months. The first 40' of wire will be supported vertically by a fibre glass mast then the remaining 156' by the balloon. I have a ground plane in place already and will use a manual tuner at the base to 50 ohm coax, I expect to use this on other bands besides Top band. What is a good type of wire to use, obviously flexible, not too heavy but good copper content, or would electric fence cord (with woven in stainless steel strands) be too lossy? looking for any tips advice etc.

73, Deni
F5VJC

3276. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 10:48:57 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <dvra2oslr1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com>
Source record: 62437

```
> I should have also mentioned frequency is 900 MHz.
=========================================

About time too! It could have all been happening on 160 meters. ;o)
```

3277. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 12:08:37 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <$ubYHIOF5TIEFAPM@ifwtech.co.uk>
Source record: 62439

wrote:
>
>Roy Lewallen wrote:
>> Ian White GM3SEK wrote:
>> > . . .
>> > In principle there is nothing wrong with attempting a traveling-wave
>> > analysis for a loaded whip. Done correctly, it will give the right
>> > results that join up seamlessly with circuit theory as well.
>> > . . .
>>
>> One of the tests the traveling wave analysis must pass is that the
>> results from forward current wave excitation plus the results from
>> reverse current wave excitation must equal the results from excitation
>> by the sum of the two, i.e., the total current. This is required by
>> superposition, whether the network is lumped or distributed.
>
>
>Cecil claims I'm the ONLY one who disagrees with him!
>
>Richard C., Ian, Roy, Gene, and Tom D. also appear to not be on Cecil's
>team.

The only thing those people have in common is a desire to get the facts
right... and physical reality allows no compromises.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3278. Re: Antenna Height?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 12:09:42 UTC
From: Tom Uwano <uwano@hi-ho.ne.jp>
Message-ID: <dvreq9$193e$1@dojima-n0.hi-ho.ne.jp>
Source record: 62438

> Tom, can you clarify on how to take the average height of the pattern?

It is not the average height. It is the average reception power.
Suppose you change the height of RX antenna (preferably together with
TX antenna) by (more than) a half wave length, you'll observe maximum
level Px and minimum level Pn.
So the reception voltages Vx and Vm are sqrt(Px) and sqrt(Pm).
The average voltage Va is then (Vx+Vm)/2. Thus average RX power is Va^2.

> Also, if I keep the TX and RX antenna close, wouldn't that eliminate
> the far-field effects?

It is not a far-field measurement. But the error might not be as
much as 3dB if the distance is such as two to three wave-lengths,
which is sometimes better than the bad average measurement performance
or doing nothing.

Tom/jj3fbs

3279. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 12:51:41 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <xLbUf.41013$_S7.28788@newssvr14.news.prodigy.com>
Source record: 62440

Ian White GM3SEK wrote:

To all: Ian is not addressing the issue which is: Can a standing wave current phase measurement be used to tell us anything about the phase shift through a loading coil? The answer is NO! W7EL's phase measurements are flawed. Therefore, they cannot be presented as evidence of anything valid. They certainly cannot be used to prove that a coil is a point inductance.

The question is not whether the two models agree on the low end - they do agree. The question is whether they agree on the high end - they don't and they are not supposed to. The differences I have presented in the two models is where the lumped circuit model fails and the distributed network model is valid.

> There is an infinite range of real-life loading coils of various shapes
> and sizes. Pure single-point inductive loading is the limiting case that
> marks one end of that range. Any successful theory has GOT to get this
> case right - and if it can't, it fails.

Since the distributed network model is a superset of the lumped circuit model, it does get that case right. It also gets the case right at the other end of the range where the lumped circuit model fails. 75m mobile loading coils cannot be validly modeled using the lumped circuit model.

> Regardless of the actual method used, any correct analysis of the whole
> antenna MUST conclude that, for the limiting case of pure inductive
> loading, the voltage/current/phase relationships at the loading
> inductance are the SAME as those predicted by conventional circuit
> analysis. This limiting case is where the two kinds of analysis come
> together, and here they MUST agree.

And they do, no question about that.

> That means a correct analysis for the whole antenna MUST predict zero
> phase shift in the current (It = I0 cos wt) between the terminals of the
> loading inductance.

Here you are allowing your model to dictate reality, not vice versa. A practical antenna is a large structure, usually at least an electrical 1/4 wavelength. There is no such thing as a point inductance in a real world mobile ham antenna.

> Let's be clear: in this context, "current" is the plain ordinary
> alternating current that we learned about in school: It = I0 cos wt. It
> is the simple back-and-forth movement of electrons (charge) past a given
> point.

Let's be clear. That model fails in a transmission line as it does in standing wave antennas. Taking a simple-minded approach to physics is where the air, earth, fire, and water elements came from.

> Nobody denies that for real-life loading coils there can be a phase
> shift in the current from end to end, and that it will become larger as
> the coil becomes longer and skinnier. That isn't the question I'm
> addressing here. But the question of what happens when the coil shrinks
> down to become a single-point loading inductance is equally important:
> it cannot be evaded, and it is a definitive deal-breaker.

In that case, both models give the same answer. But that case doesn't exist in reality in real-world antennas. In reality, the lumped circuit model fails when it is extended to large structures like transmission lines and antennas.

> It's hard to tell for sure from the avalanche of messages, but Cecil's
> analysis apparently fails in the limiting case of pure inductance - or
> rather, he seems to deny that the test is even a valid one.

The distributed network analysis works perfectly in the limiting case since it is a superset of the lumped circuit model. There is absolutely no disagreement between the distributed network analysis and the lumped circuit analysis for point inductors. Anyone who says there is is just attempting to set up a strawman.
--
73, Cecil http://www.qsl.net/w5dxp

3280. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 12:58:36 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <0SbUf.41014$_S7.40340@newssvr14.news.prodigy.com>
Source record: 62441

Roy Lewallen wrote:
> One of the tests the traveling wave analysis must pass is that the
> results from forward current wave excitation plus the results from
> reverse current wave excitation must equal the results from excitation
> by the sum of the two, i.e., the total current. This is required by
> superposition, whether the network is lumped or distributed.

It certainly does that within the bounds of the principle of
superposition. But as I earlier pointed out, like two superposed
PSK modem signals, phase information is lost in the superposition.
You used standing wave current phase to try to measure the phase
shift through a coil. Your attempt was futile since the standing
wave current phase doesn't contain any phase information.

> And analysis based on a distributed model, as Ian says, must converge to
> the same results as a model with lumped components as the physical sizes
> of the components get very small.

And it certainly does. But the distributed network model works
for antennas and transmission lines where the lumped circuit model
fails. The lumped circuit model is supposed to fail for transmission
lines and antennas.

> Analyses of the examples using lumped models with total current have
> been entirely adequate to explain the observed inductor currents.

Maybe for you, Roy, but not for me and others. Are the four elements
of earth, air, water, and fire adequate to explain the physical
world to your satisfaction?
--
73, Cecil http://www.qsl.net/w5dxp

3281. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:08:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <p%bUf.41015$_S7.18237@newssvr14.news.prodigy.com>
Source record: 62442

w8ji@akorn.net wrote:
> Cecil claims I'm the ONLY one who disagrees with him!

False! Gene Fuller, Tom Donaly, and Roy Lewallen have all made postings that support my side of the argument against yours. That doesn't mean they agree with me 100%. They agree with me on some technical things that are not in dispute except by you.

1. Standing wave current, Func(kz)*Func(wt), is a different thing from traveling wave current, Func(kz +/- wt). The phase of standing wave current contains zero phase information and therefore cannot be used to ascertain anything about phase. Roy's phase measurements were meaningless and his conclusions were flawed.

2. The EZNEC results need to be explained by you guys. When you accused my measurements of being wrong, Roy reported that EZNEC agrees with my measurements. How do you explain that?

3. How do you explain the EZNEC results on my web page at:

http://www.qsl.net/w5dxp/current.htm

All of the arm-waving in the world is not going to make these technical facts go away.

I will be leaving for spring break tomorrow morning and won't be back until Sunday night. It would be nice for you guys to have answered my 12 or so technical questions by then.
--
73, Cecil http://www.qsl.net/w5dxp

3282. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:22:12 UTC
From: jimbo <jimbo62@spamex.com>
Message-ID: <b46dnTgvhPQZ0rzZRVn-sQ@comcast.com>
Source record: 62443

Allison-nospam@nouce.bellatlantic.net wrote:
> On Tue, 21 Mar 2006 22:15:22 -0800, "Sal M. Onella"
> <salmonella@food.poisoning.org> wrote:
>
>
>>"jimbo" <jimbo62@spamex.com> wrote in message
>>news:RZadnXHuHeVRmb3Z4p2dnA@comcast.com...
>>
>>>jimbo wrote:
>>>
>>>
>>>Thanks for all of the advice. I have one more question. Can I tune a
>>>J-Pole antenna in my shop and then move it to the attic and expect the
>>>same performance? In other words, is an antenna an antenna or is an
>>>antenna and it's installation an antenna?
>>>
>>>It would seem to me that if the antenna is tuned and works in my shop
>>>it should work in the attic. Otherwise, how do "store bought" antennas
>>>work?
>>>
>>>Thanks, jimbo
>>
>>I have built about twenty copper-pipe j-poles and I have found that with
>>five feet or so between the antenna and surroundings, the tuning doesn't
>>change enough to be annoying.
>>
>>The copper pipe j-pole can be dropped into a pipe and hoisted into the clear
>>for VSWR evaluations if you really want to get gnats-assey about it.
>
>
> I've found getting them 6ft (for 2m) above the ground was enough that
> another 20ft didn't change it enough to measure.
>
>
>>Speaking of that, I have found that j-poles usually don't hit 1:1, even
>>when the low point is mid-band. However, after I get the best match,
>>I insert a 100 pF capacitor between the coax center pin and the antenna
>>and "Viola!" I stole that idea from the gamma match.
>>
>
> I've had good swr match(1:1 or unmeasurably close) without the cap.
>
> Also the original poster has the ladder line based jpole in the attic.
> If it's like most I've seen the attic is within 5ft . Like I'd said

> elsewhere the twinlead and ladder line versions are fussier and
> tend to be different from one batch of wire to another.
>
>
> Allison

Yes, the attic has the roof within five feet. No walls but lots of cross braces. I am going to tune a J-Pole in my shop and then take it to the attic and check the difference.

jimbo

3283. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:40:25 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <dtcUf.41020$_S7.4955@newssvr14.news.prodigy.com>
Source record: 62444

Ian White GM3SEK wrote:
> The only thing those people have in common is a desire to get the facts
> right...

I have asked you guys to explain the technical facts behind
about a dozen technical questions of mine. The silence has
been deafening. Many readers of this newsgroup have noticed
the same thing.

Here are the technical facts about the two models. At one end
of the spectrum, we have lumped inductance. At the other end
we have physically huge coils. The crossover point where the
lumped circuit model becomes invalid is about 0.04 wavelength.
A mobile antenna is a lot longer than that. At lengths above,
0.04 wavelength, standing waves have to be taken into account.
The lumped inductance model cannot take standing waves into
account. It assumes instantaneous faster-than-light propagation
of current.

DC|-------------distributed network model valid----------------|

DC|---lumped circuit model valid---| 0.04WL cutoff

Here are the two main technical points:

1. Nothing valid is proven by using standing wave current phase
to measure anything. Gene F. and Tom D. seem to realize that.

2. The taper of the standing wave current through a coil
depends upon where the coil is placed in the standing wave
environment. You guys have looked only at mobile antennas.
Try looking at longer antennas like the one at:

http://www.qsl.net/w5dxp/current.htm

You will find that the current taper through a coil can be
zero, positive, negative, or even reverse phase. The phase
reversal can be considered to be current flowing into both
ends of the coil at the same time.

Please come out of the deep dark lumped circuit cave and
see what the rest of the world is like. You guys have been
seduced by your model. You have assumed the presuppositions
of the model are valid without technical proof.

Here's an analogy:
Ian W. says: I believe water is one of the basic elements and
as proof, I offer a quart of water.

Roy L. says: I believe earth is one of the basic elements and as proof, I offer a bucket of earth.

Tom R. says: I believe fire is one of the basic elements and as proof, I offer this burning torch.

Richard C. says: I believe air is one of the basic elements and as proof, I offer this balloon full of it.

Cecil says: I believe there are over 100 elements and as proof, I offer this periodic chart of those elements.

I will be on spring break until Monday so don't think I have given up on getting the technical facts out there for all to see.
--
73, Cecil http://www.qsl.net/w5dxp

3284. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:41:53 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <BucUf.17621$bn3.7959@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62445

Cecil,

Sorry, Ian had it exactly correct. I cannot speak for Roy or others, but I am quite sure I did not take any "side" in this topic. I believe in lumped circuit models, and I believe in network models. My aim was to try to correct some of the basic math and physics flaws, not to argue over the exact regimes of applicability for lumped and non-lumped models.

If you choose to use my postings as support for your "side", so be it.

At the same time, if proving your "side" includes mobile antennas with 48 foot whips and giant bugcatcher coils working at three times their self-resonant frequency, then please leave me off of your "side".

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> Cecil claims I'm the ONLY one who disagrees with him!
>
>
> False! Gene Fuller, Tom Donaly, and Roy Lewallen have all made
> postings that support my side of the argument against yours.
> That doesn't mean they agree with me 100%. They agree with me
> on some technical things that are not in dispute except by you.

3285. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:54:03 UTC
From: tucker@conninc.com
Message-ID: <1143035643.588010.282750@z34g2000cwc.googlegroups.com>
Source record: 62446

No Jerry its August 1977 - 73 magizine, im looking at it now & they try and compare all other antennas to it and noe even come close. The article was writen by Bill Parker W8dmr, anyway i think i will stay with a yagi type or try ands build a 8 bay biquad like the Channel Master uhf tv antenna.

N4aeq

3286. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 13:57:03 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <ROxTvDWveVIEFAJs@ifwtech.co.uk>
Source record: 62447

Cecil Moore wrote:
>To all: Ian is not addressing the issue which is: Can a standing wave
>current phase measurement be used to tell us anything about the phase
>shift through a loading coil? The answer is NO!

I flatly do not accept your notion of a special kind of "standing wave current" that has its own special kind of phase properties.

The current that the loading coil experiences is plain old ordinary alternating current flowing in the wire - the simple movement of electrons back and forth past a point, according to It = I0 cos wt. That is also the current that an RF ammeter reports, and the current that a computer simulation reports too.

Any special kind of current that requires electronic components to behave in some different way from normal is simply not real.

You have a fundamental misconception of what a standing wave of current really is. You repeat all the words about "standing waves", "cos kz", "scientific logic", "laws of physics" etc; but you don't actually let any of it into your mind.

All the questions you ask other people are rooted in your own misconceptions. In other words, the questions are rigged so that they cannot be answered except by agreeing with you. And if someone very sensibly does not answer - why, you "win" that way too. I don't believe you realise how regularly you do this.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3287. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:06:45 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <VRcUf.41021$_S7.40512@newssvr14.news.prodigy.com>
Source record: 62448

Gene Fuller wrote:
> I am quite sure I did not take any "side" in this topic.

I assume you are on the side of technical facts as am I.

> I believe in
> lumped circuit models, and I believe in network models. My aim was to
> try to correct some of the basic math and physics flaws, not to argue
> over the exact regimes of applicability for lumped and non-lumped models.

Your func(kx)*func(wt) Vs func(kx +/- wt) posting contributed a
good deal of technical accuracy to the discussion and I thank
you for that.

> At the same time, if proving your "side" includes mobile antennas with
> 48 foot whips ... then please leave me off of your "side".

And there's the blind spot. The two antennas are identical except
for the 40 foot extension. The coil doesn't know the extension
is there. Why did the slope of the current taper reverse between
those two configurations? How does the lumped-circuit model explain
more current "flowing" out of the top of the coil than is "flowing"
into the bottom of the coil? It's a simple question but the answer
has been conspicuous by its absence. I will keep asking that question
until someone answers it.

The distributed network analysis handles both of those configurations
in a valid way. Adding 40 feet to an antenna is no problem. The relative
phases of the forward and reflected currents changed - that's all that
happened.

But by adding 40 feet of wire to the antenna, the lumped circuit analysis
falls completely apart. So how do we know it was valid for the 8 foot
antenna where everything is the same except for length? We don't!

Since the lumped circuit analysis falls apart by adding 40 feet to an
antenna, I contend that the lumped circuit analysis fell apart with the
8 foot antenna but you guys don't realize it yet.
--
73, Cecil http://www.qsl.net/w5dxp

3288. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:16:40 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <dvrm88$1do0$1@f04n12.cac.psu.edu>
Source record: 62449

Old Ed wrote:
> Hi Michael,
>
> Thank you for your comments! I'd be interested in trading experiences
> with you on the OCF topic, either here or direct. Did you make one
> or buy one?

I made mine. The design is a combination of one of the antennas on the
salsawaves site. (I don't have the URL handy, but if you google
salsawaves it will get you there.) The other section of the design was
with EZNEC demo.

> I have interleaved some other responses below...
>
> 73, Ed
>
> "Michael Coslo" <mjc5@psu.edu> wrote in message
> news:dvmot3$1nle$1@f04n12.cac.psu.edu...
>> Old Ed wrote:
>>> Reg,
>>>
>>> The type of antenna you describe is very useful and popular.
>>>
>>> However, your assertion is much too sweeping as a generalization.
>>> In no particular order, here are some caveats:
>>> 1. The qualifier "best" is largely meaningless, absent an agreed
>>> set of weighted criteria for "goodness." (How important is:
>>> size? weight? cost? visual profile? bandwidth? instant QSY?
>>> gain? pattern? low-band performance vs. high-band performance?
>>> power-handling capacity? need for tuner? etc., etc., etc.)
>> I'm always hesitant to use words like "best" for all the reasons you
>> state, but I think that Reg qualified things pretty well.
>
> I think Reg's ONLY qualifiers were "all round, all band" (presumably
> meaning 80 thru 10). To me, that description falls well short of the
> mark, as "qualifiers."
>
>> Within the
>> qualifications of all band dipoles, the ladder-line fed general dipole
>> is pretty darn hard to beat. I recommend them to any new hams that ask
>> me for advice on antennas.
>>
> You can make a good case for this proposition. But I'm a bit puzzled
> on how these qualify as A-1 newbie antennas.
>

> First, our newbie to learn how to coddle finicky ladder line, bring it
> into the shack, and make the transition to unbalanced feed. Then he/she
> needs a crash course on transmatches:
> 1. Balanced or unbalanced design? (If unbalanced, may not work well
> with this antenna; if balanced, may not work with future, coax-fed
> antennas.)
> 2. Low or high power? (If low, may need to upgrade later.)
> 3. Manual or automatic? (If automatic, how interface to rig?)
> 4. Which brand and model? (Might Fine Junk or $quality$?)
> 5. New or used?
> 6. How do you operate the transmatch?

I've always suggested cutting teeth on low power, then working your way
up. Mistakes are a lot less dangerous that way. In most cases, I suggest
the MFJ approach. I have one that is now in a emergency backup. My
thoughts on them are that they are certainly not the highest quality,
but they work, and you can always get rid of one to start another ham on
their way.

> If our newbie wants some power-handling capability, and plans
> to buy it new, he/she will need an extra 500 to 700 USD and more
> space on the desk.
>
> Re Reg's reference to a choke balun: I've been looking for good quality,
> commercial choke baluns equipped with SO-239 inputs and outputs.
> So far, I haven't found any; and I haven't been quite motivated enough
> to make one. What should our newbie do to get one, if needed?

I've made all my baluns, 4:1 and choke, for my setup. But you raise a
good point, as I'll note below.

>> My rationale is that most new hams these days buy rigs that are
>> all-band, transistorized units.These units are also sensitive to
>> mismatches between antenna and rig. Most new hams are not antenna gurus
>> either. So here is an antenna that will allow them to get on the air
>> without a lot of fussing. The only real measurement caveats are some
>> lengths that you don't want to use.
>>
> I can't quite see how slogging thru all the above is going to be easier for
> a newbie than buying a Buckmaster OCF or basic trap dipole, buying a
> ready-made coax jumper of the required length, and then doing plug-
> and-play with the (typical) rig's built-in auto-tuner. But it probably
> would be more educational.

Ah, Ed, you have exposed me being shortsighted! I'm a compulsive
homebrewer, and I never considered buying a ready made antenna. The
other approach might be quite different than mine, and yet just as valid.
>
>> So we end up with an antenna that allows the newbie to get on the air,
>> allows them to learn some stuff by twiddling knobs and such, then when
>> they have a bit more experience, they can tackle that more "advanced
>> antenna" with it's more exacting design, trimming , and measurements.

>>
> I'm having a hard time figuring out what antenna type(s) would be "more
> advanced" than the random-length-doublet-with-outboard-ATU, and
> yet require more fiddling.

If a person decides to make a trap or even more so a fan dipole, they
will be doing a lot of cutting and trimming and measuring. I've always
thought that for a newbie to get their feet wet, the less of that and
the more on-air experience with adjustments the better.

> But I will grant you this: IF someone decides from the get-go that they
> want a glitzy transmatch at their operating position--whether they need
> it or not--then the balanced-feeder doublet makes pretty good sense.
> This would be especially true if there wasn't enough space for something
> like a Buckmaster OCF, but there was enough space for (say) an 88'
> doublet.

I've made an 88" doublet for field day. It was a very good antenna on
20 and 40 meters, and so-so on 80.(still not too awful bad). I know
someone is going to ask me to define "Very good". In this case, I
received many unsolicited comments on good signal strength on 40 and 20,
had no trouble getting through on first call. On 80 I had to work a good
bit harder.

It is good to get another perspective on this.

- 73 de Mike KB3EIA - -

>>
>>> 2. A good case can be made that choosing the "right" length is
>>> "better" than a random length, within this type.
>>> 3. An excellent case can be made that center-fed is NOT always
>>> the "best" option, within this type.
>>> 4. I'll let the fans of this antenna type chime in with why they
>>> prefer balanced tuners and/or tuned feeders to the use of an
>>> unbalanced tuner... if they want to. (I use more tailored
> antennas,
>>> and don't need a tuner of any kind, most of the time.)
>> As I do now. I've really been smitten with my OCF dipole, fed with
>> Coax, because in no small part, the feedpoint drops straight down to my
>> shack. That coupled with an automatic tuner in my radio , allowing me to
>> "plug and play.
>>
>> But I still strongly urge newcomers to put up one of those ladder line
>> dipoles for the experience. They work okay, too! 8^)
>>
>>> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
>>> news:dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
>>>> The best, all round, all band, antenna is a high centre-fed dipole of
>>>> no particular length, fed with an open-wire feedline of no particular
>>>> length or impedance, all the way to the shack, used with a choke-balun
>>>> and an unbalanced tuner.

>>>>
>>>> It is good down to the frequency at which the dipole is about
>>>> 1/3-wavelength long.
>>>>
>>>> Simplicity = efficiency.
>>>>
>>>> Once tried you will never return to anything else.
>>>> ----
>>>> Reg.
>>>>
>>>>
>>>
>
>
>

3289. Wideband Folded Loop Construction Details

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:32:40 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1222o0f8rbouha3@corp.supernews.com>
Source record: 62450

Geltlemen,
I have been considering the Wideband Folded Loop (WFL) for a couple of weeks now to use as a secondary antenna when talking with all of the local yocals who are spread out on 40 and 75 and 80 mtrs. I have seen the photographs of the assembled antenna, BUT, no dimentions and by reducing the physicical size of the antenna, I'm guessing the multiple dimentions must be pretty tight to function as a no tuner 1.5 to 30 mHz. Any help would be greatly appreciated. Thanks

Butch KF5DE

3290. Re: Reading SWR with low power

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:35:05 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <lun22259m7q84faoj7pq3v77akdk0sk935@4ax.com>
Source record: 62451

On Wed, 22 Mar 2006 10:48:57 +0000 (UTC), "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>> I should have also mentioned frequency is 900 MHz.
>=======================================
>
>About time too! It could have all been happening on 160 meters. ;o)
>
I was going to recommend my Oakhills Research qrp wattmeter; it has a
100 milliwatt scale, but it is only rated to 54 mhz. I also looked at
the Bird list of slugs -- they have 100 milliwatt slugs, but not in
the 900 mhz range.

bob
k5qwg

3291. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:39:07 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <fkdUf.3967$tN3.2878@newssvr27.news.prodigy.net>
Source record: 62452

Ian White GM3SEK wrote:
> I flatly do not accept your notion of a special kind of "standing wave
> current" that has its own special kind of phase properties.

We already know that, Ian. Please drag out your dusty math book
and try to understand the difference between the standing wave
current function, func(kx)*func(wt), and the traveling wave
current function, func(kx +/- wt). They are obviously different.
Calling the standing wave current a "current" is something of
a misnomer since it doesn't exhibit the characteristics of a
normal current at all. What are the implications of a "fixed
phase" for a current, i.e. its phasor doesn't rotate?

Do you disagree with Gene's technically accurate posting on the
subject?
****
> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase. The so-called "phase reversal" in longer antennas is
>> not really about phase either. It is merely a representation of the periodic
>> sign reversal seen in a cosine function.
****

> The current that the loading coil experiences is plain old ordinary
> alternating current flowing in the wire ...

False! Standing wave current is different from DC, AC, or RF
traveling waves. Please take time out to understand the
implications of a non-rotating phasor for a current. All other
AC currents have rotating phasors but the standing wave current
phasor doesn't rotate all up and down a 1/2WL thin-wire dipole.
That makes it extremely different from any other AC current.

> Any special kind of current that requires electronic components to
> behave in some different way from normal is simply not real.

The forward current and the reflected current are not special. The
superposed standing wave current doesn't behave as normal current at
all. It's phase doesn't change along the entire length of a 1/2WL thin-
wire dipole. I have said this a dozen times and it hasn't yet soaked

in yet so I will continue to repeat it. What does unchanging phase imply about a standing wave current? All other AC currents change phase.

> You have a fundamental misconception of what a standing wave of current
> really is. You repeat all the words about "standing waves", "cos kz",
> "scientific logic", "laws of physics" etc; but you don't actually let
> any of it into your mind.

I am open-minded, Ian, and use the scientific method to correct my mistakes and thus zero in on the technical facts. One of a guru's presuppositions is that he already knows everything. I have no such misconceptions about myself.

> All the questions you ask other people are rooted in your own
> misconceptions. In other words, the questions are rigged so that they
> cannot be answered except by agreeing with you.

No, Ian, my questions are rigged so they cannot be answered except by agreeing with the laws of physics and gurus cannot afford to show their ignorance of the laws of physics. That leaves them between a rock and a hard place as far as answering my questions are concerned. That's the only reason for the "Silence of the Gurus".
--
73, Cecil http://www.qsl.net/w5dxp

3292. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:43:05 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <gbo2225qvq83ot31pp3p85o27b1odah4ml@4ax.com>
Source record: 62453

On Wed, 22 Mar 2006 06:22:12 -0700, jimbo <jimbo62@spamex.com> wrote:

>Allison-nospam@nouce.bellatlantic.net wrote:
>> On Tue, 21 Mar 2006 22:15:22 -0800, "Sal M. Onella"
>> <salmonella@food.poisoning.org> wrote:
>>
>>
>>>"jimbo" <jimbo62@spamex.com> wrote in message
>>>news:RZadnXHuHeVRmb3Z4p2dnA@comcast.com...
>>>
>>>>jimbo wrote:
>>>>
>>>>
>>>>Thanks for all of the advice. I have one more question. Can I tune a
>>>>J-Pole antenna in my shop and then move it to the attic and expect the
>>>>same performance? In other words, is an antenna an antenna or is an
>>>>antenna and it's installation an antenna?
>>>>
>>>>It would seem to me that if the antenna is tuned and works in my shop
>>>>it should work in the attic. Otherwise, how do "store bought" antennas
>>>>work?
>>>>
>>>>Thanks, jimbo
>>>
>>>I have built about twenty copper-pipe j-poles and I have found that with
>>>five feet or so between the antenna and surroundings, the tuning doesn't
>>>change enough to be annoying.
>>>
>>>The copper pipe j-pole can be dropped into a pipe and hoisted into the clear
>>>for VSWR evaluations if you really want to get gnats-assey about it.
>>
>>
>> I've found getting them 6ft (for 2m) above the ground was enough that
>> another 20ft didn't change it enough to measure.
>>
>>
>>>Speaking of that, I have found that j-poles usually don't hit 1:1, even
>>>when the low point is mid-band. However, after I get the best match,
>>>I insert a 100 pF capacitor between the coax center pin and the antenna
>>>and "Viola!" I stole that idea from the gamma match.
>>>
>>
>> I've had good swr match(1:1 or unmeasurably close) without the cap.
>>

>> Also the original poster has the ladder line based jpole in the attic.
>> If it's like most I've seen the attic is within 5ft . Like I'd said
>> elsewhere the twinlead and ladder line versions are fussier and
>> tend to be different from one batch of wire to another.
>>
>>
>> Allison
>
>Yes, the attic has the roof within five feet. No walls but lots of
>cross braces. I am going to tune a J-Pole in my shop and then take it
>to the attic and check the difference.
>
>jimbo

I have a ladderline j-pole right outside my attic, in a small tree,
and I lucked out on swr, just following the measurements I found on
the internet diagram of the thing. One trick you might try is to stick
a straight pin into the insulation, touching the longer wire element.
Raise and lower the pin for resonance.

bob
k5qwg

3293. SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 14:56:41 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143039401.294306.151160@g10g2000cwb.googlegroups.com>
Source record: 62454

where could i possibly buy high-valued inductors (tens of uH) with an
SFR close to 3GHz.this will serve as my rf choke in conjuction of a
decoupling cap of 100nF...thanks
murata has good high frequency inductors but the problem is i cant find
one with high SFR..
thanks!

3294. Re: Dual rhombic antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 15:31:33 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <3tq2225udqrak72ng16fit5qjiubc9eljt@4ax.com>
Source record: 62455

I thought it sounded familiar.

I have not kept in touch the last decade but Bill was a mentor to me.
He did a lot of antenna experimenting, especially on 432 mhz. He is
listed in QRZ.Com, you might send him a snail mail.

As I recall, the article was written during the building of the
antenna. Testing after the article was published did not support the
calculations. Unfortunately you cannot "un publish" a hard copy!

Most of us were still using slide rules & calculators to crunch number
then!

On 22 Mar 2006 05:54:03 -0800, tucker@conninc.com wrote:

> No Jerry its August 1977 - 73 magizine, im looking at it now & they
>try and compare all other antennas to it and noe even come close. The
>article was writen by Bill Parker W8dmr, anyway i think i will stay
>with a yagi type or try ands build a 8 bay biquad like the Channel
>Master uhf tv antenna.
>
>N4aeq
John Ferrell W8CCW

3295. Re: Wideband Folded Loop Construction Details

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 15:51:27 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <1d88f3-52s.ln1@p400bob.personal.cox.net>
Source record: 62456

Hi Butch

Are you talking about the terminated folded dipole antenna?

Mr Cebik has a rundown on them at;

http://www.cebik.com/wire/wbfd.html

and says that the antenna is "typically" 90ft long for 80-10m. There is however a non trivial loss at 80m you may want to check on.

If you like "no tuner" also consider Cecils w5dxp's doublet at;

http://www.qsl.net/w5dxp/notuner.htm

That uses sections of 450 ohm feedline that are swicthed in and out of circuit.

Cheers Bob W5/VK2YQA

Butch Magee wrote:
>
>
> Geltlemen,
> I have been considering the Wideband Folded Loop (WFL)

3296. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:07:22 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jdt222lv3lbsrutovarqdnsad3hj14is61@4ax.com>
Source record: 62457

On Wed, 22 Mar 2006 13:08:37 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>False! Gene Fuller, Tom Donaly, and Roy Lewallen have all made
>postings that support my side of the argument against yours.

I, on the other hand (barring these misappropriated citations), have
busted this thread four times.

It lingers on in soap opera format for amusement purposes only.

3297. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:22:27 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <98u2225s79cf2cth9dku65d7ni07e59jvf@4ax.com>
Source record: 62459

On Wed, 22 Mar 2006 10:36:48 +0100, Deni <telegrafiste@tiscali.fr>
wrote:

>looking for any tips advice etc.

Hi Deni,

Make sure you are not violating any civil airspace rules. One
consideration is how do you insure your balloon will not escape?
Another consideration is to make sure the balloon is some distance
away from the end of the wire. Tying the wire to the balloon invites
the high potential at the end of that wire to explode *POP* the
balloon.

73's
Richard Clark, KB7QHC

3298. "Silence of the Gurus"

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:22:32 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <cReUf.41044$_S7.29960@newssvr14.news.prodigy.com>
Source record: 62458

It's spring break time and I won't be back until Monday.

On my web page at http://www.qsl.net/w5dxp/current.htm

- is what EZNEC says about a 5.89 MHz, 8' mobile antenna
and what happens to the standing wave current through
the coil when 40' is added to the top of the antenna.
The .EZ files are available for downloading from that
web page. Anyone with a full-featured copy of EZNEC
can duplicate my results.

The *only* change between antennas is the addition of
that 40' of wire. Everything else, including the frequency,
stays the same. (The coil doesn't know that it is supposed
to honor the lumped circuit model and reports the facts
of physics.) The current "flowing" into the bottom of the
coil is 1.29 amps. The current "flowing" out of the
top of the coil is 2.07 amps. Seems that fact alone
is enough to prove that standing wave current doesn't
"flow" in the commonly accepted definition of the word.

Guru gut feelings to the contrary, these results can easily
be proven with real-world measurements by anyone to expend
the time and effort.

The r.r.a.a gurus have four days of peace in which to
figure out a reasonable technical explanation for those
EZNEC results. Enjoy!
--
73, Cecil http://www.qsl.net/w5dxp

3299. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:23:42 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <iSeUf.41045$_S7.30232@newssvr14.news.prodigy.com>
Source record: 62460

Richard Clark wrote:
> I, on the other hand (barring these misappropriated citations), have
> busted this thread four times.

In your mind, delusions of grandeur certainly seem to work. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3300. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:27:29 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <vku222lj56n4osobst3e8btqjh9eo66p8n@4ax.com>
Source record: 62461

On Wed, 22 Mar 2006 16:23:42 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>> I, on the other hand (barring these misappropriated citations), have
>> busted this thread four times.
>In your mind, delusions of grandeur certainly seem to work. :-)
Through logic, on paper, at the bench, by gum. It certainly shut you
up.

3301. Re: building a yagi

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:36:59 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrne22vei.4er.bit-bucket@shell.config.com>
Source record: 62462

On Wed, 22 Mar 2006 03:27:09 GMT, Leadfoot wrote:
> I going to build a 11 element yagi but the problem I'm having is I can't
> find the aluminum rods, I was wondering if I use copper if I will still get
> the same Db gain.

Ya, you'd get the same gain, but the antenna would be pretty damn heavy!

Make your own AL rod like I do: Find AL wire -- about 8-10 gauge will
do. It'll be soft and flexible -- not what you would chose for ant.
elements. Well...

Cut your elements out of the wire -- each about 5-6 inches _longer_ than
you want. For each element, clamp one end in a bench vise and chuck the
other end in a 3/8" or 1/2" electric drill. While pulling back on the
drill, run the drill -- twisting the wire until you have 1 - 1 1/2
twists-per-inch in the element. (Much more than that will make it too
brittle for use.) What you end up with is a nice, stiff, straight rod
suitable for 2M antennas -- and higher in freq.

I made a 6 el. vert 2M beam that I mounted on the fore-boom of my
tri-bander
http://jonz.net/W3DHJ/images/W3DHJ_Tower.jpeg
from
AL conductors that I scrounged from scrap ends of power cable from the
local REA. There were six AL conductors wrapped around a steel core
wire. The AL conductors were about 7/32" in dia.
I got the 15' lengths (useless for them) for free.

Now, if you have large roosting birds in your area, it might require
heftier elements for a horizontal beam than I've described. i do not
have such problems here.

I'm pretty sure you could find large gauge AL ground wire in the
electrical dept. at your local hardware emporium.

HTH
Jonesy
--
Marvin L Jones | jonz | W3DHJ | linux
38.24N 104.55W | @ config.com | Jonesy | OS/2
*** Killfiling google posts: <http//jonz.net/ng.htm>

3302. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:40:22 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <W5fUf.180$%H.119@clgrps13>
Source record: 62463

www.coilcraft.com

Regards,

Frank

"mazerom" <electromagnetic377@yahoo.com> wrote in message
news:1143039401.294306.151160@g10g2000cwb.googlegroups.com...
> where could i possibly buy high-valued inductors (tens of uH) with an
> SFR close to 3GHz.this will serve as my rf choke in conjuction of a
> decoupling cap of 100nF...thanks
> murata has good high frequency inductors but the problem is i cant find
> one with high SFR..
> thanks!
>

3303. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:41:59 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143045719.368199.15900@g10g2000cwb.googlegroups.com>
Source record: 62464

Your best hope would be to cascade a small inductance and a larger one.
An alternative is to use a ferrite which looks more like a resistance
than an inductance at high frequencies, though I suppose that's not
really what you are trying to accomplish. (In general it's better to
post more about what you are wanting to do in a more global sense,
because sometimes the best solution is different than what you've
assumed.) Note that an 0.1uF capacitor is very unlikely to look much
like a capacitor above a few MHz, let alone up to 3GHz.

Cheers,
Tom

3304. Re: "Silence of the Gurus"

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:49:05 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <6tv222t1timmp9jo93pnb37uh4dij96htp@4ax.com>
Source record: 62466

Are you in your Hannibal Lecter character now?

Forgive me if I skip using the skin lotion.

3305. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 16:54:08 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <fPGdnSvDPcZL4rzZnZ2dnUVZ_sydnZ2d@adelphia.com>
Source record: 62465

Cecil Moore wrote:
> We already know that, Ian. Please drag out your dusty math book
> and try to understand the difference between the standing wave
> current function, func(kx)*func(wt), and the traveling wave
> current function, func(kx +/- wt). They are obviously different.
> Calling the standing wave current a "current" is something of
> a misnomer since it doesn't exhibit the characteristics of a
> normal current at all. What are the implications of a "fixed
> phase" for a current, i.e. its phasor doesn't rotate?

This can be improved.

Current is charge movement. DC, traveling waves and standing waves
all are *exactly* charge moving past a given point, and nothing more.

A phasor is not a real thing, but a mathematical abstraction that
relates how the sinusoidal change in current magnitude and direction
relate to a reference periodic cycle in time. Since, in both standing
waves and traveling waves, current at a point, changes magnitude and
sign in exactly the same way (at a point, they are indistinguishable),
they can both be described with phasor notation.

The difference between a traveling wave and a standing wave is how the
phasor representing the current at one point differs from the phasor
representing the current at a neighboring point.

For traveling waves, the phasor of a neighboring point has the same
amplitude but a different phase shift (passes through zero at a
different time).

For standing waves, the phasor of a neighboring point has the same
phase shift, but a different amplitude, unless the neighboring point
is on the other side of a current node. Then it has the opposite phase.

But at any point along both standing waves and traveling waves, there
certainly is a phasor that represents the current at that point.

You need to get past this misconception that standing waves are not
current and are not describable by phasors. I think your concepts are
correct in lots of ways and recently improving, but this is a
recurring snag that keeps detouring your adversaries into straw men
that you offer them on a platter.

3306. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 17:09:48 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <SN2dnaGzS7tAGbzZSa8jmw@karoo.co.uk>
Source record: 62467

mazerom wrote:

> where could i possibly buy high-valued inductors (tens of uH) with an
> SFR close to 3GHz.this will serve as my rf choke in conjuction of a
> decoupling cap of 100nF...thanks
> murata has good high frequency inductors but the problem is i cant find
> one with high SFR..
> thanks!

Look at www.CoilCraft.com

They have a new series of inductors based on conical shaped coilbase which makes the coil a conical spiral coil. Some types of these are happy all the way up to 40 GHz.

Cheers

Dan / M0DFI

3307. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 17:25:27 UTC
From: Old Ed <eXseniorsDeleteThisAndTheX@earthlink.net>
Message-ID: <bMfUf.5834$x94.882@newsread1.news.pas.earthlink.net>
Source record: 62468

Hi Michael,

I tried Google search for salsawaves, and came up with a link to
an OCF "Windom" antenna. But clicking on the link just led to
a sort of highjack web page containing only ad links.

73, Ed

"Michael Coslo" <mjc5@psu.edu> wrote in message
news:dvrm88$1do0$1@f04n12.cac.psu.edu...
> Old Ed wrote:
> > Hi Michael,
> >
> > Thank you for your comments! I'd be interested in trading experiences
> > with you on the OCF topic, either here or direct. Did you make one
> > or buy one?
>
> I made mine. The design is a combination of one of the antennas on the
> salsawaves site. (I don't have the URL handy, but if you google
> salsawaves it will get you there.) The other section of the design was
> with EZNEC demo.
>
>
>
> > I have interleaved some other responses below...
> >
> > 73, Ed
> >
> > "Michael Coslo" <mjc5@psu.edu> wrote in message
> > news:dvmot3$1nle$1@f04n12.cac.psu.edu...
> >> Old Ed wrote:
> >>> Reg,
> >>>
> >>> The type of antenna you describe is very useful and popular.
> >>>
> >>> However, your assertion is much too sweeping as a generalization.
> >>> In no particular order, here are some caveats:
> >>> 1. The qualifier "best" is largely meaningless, absent an agreed
> >>> set of weighted criteria for "goodness." (How important is:
> >>> size? weight? cost? visual profile? bandwidth? instant QSY?
> >>> gain? pattern? low-band performance vs. high-band performance?
> >>> power-handling capacity? need for tuner? etc., etc., etc.)
> >> I'm always hesitant to use words like "best" for all the reasons you
> >> state, but I think that Reg qualified things pretty well.
> >

> > I think Reg's ONLY qualifiers were "all round, all band" (presumably
> > meaning 80 thru 10). To me, that description falls well short of the
> > mark, as "qualifiers."
> >
> >> Within the
> >> qualifications of all band dipoles, the ladder-line fed general dipole
> >> is pretty darn hard to beat. I recommend them to any new hams that ask
> >> me for advice on antennas.
> >>
> > You can make a good case for this proposition. But I'm a bit puzzled
> > on how these qualify as A-1 newbie antennas.
> >
> > First, our newbie to learn how to coddle finicky ladder line, bring it
> > into the shack, and make the transition to unbalanced feed. Then he/she
> > needs a crash course on transmatches:
> > 1. Balanced or unbalanced design? (If unbalanced, may not work well
> > with this antenna; if balanced, may not work with future, coax-fed
> > antennas.)
> > 2. Low or high power? (If low, may need to upgrade later.)
> > 3. Manual or automatic? (If automatic, how interface to rig?)
> > 4. Which brand and model? (Might Fine Junk or $quality$?)
> > 5. New or used?
> > 6. How do you operate the transmatch?
>
> I've always suggested cutting teeth on low power, then working your way
> up. Mistakes are a lot less dangerous that way. In most cases, I suggest
> the MFJ approach. I have one that is now in a emergency backup. My
> thoughts on them are that they are certainly not the highest quality,
> but they work, and you can always get rid of one to start another ham on
> their way.
>
>
> > If our newbie wants some power-handling capability, and plans
> > to buy it new, he/she will need an extra 500 to 700 USD and more
> > space on the desk.
> >
> > Re Reg's reference to a choke balun: I've been looking for good
quality,
> > commercial choke baluns equipped with SO-239 inputs and outputs.
> > So far, I haven't found any; and I haven't been quite motivated enough
> > to make one. What should our newbie do to get one, if needed?
>
> I've made all my baluns, 4:1 and choke, for my setup. But you raise a
> good point, as I'll note below.
>
> >> My rationale is that most new hams these days buy rigs that are
> >> all-band, transistorized units.These units are also sensitive to
> >> mismatches between antenna and rig. Most new hams are not antenna gurus
> >> either. So here is an antenna that will allow them to get on the air
> >> without a lot of fussing. The only real measurement caveats are some

> >> lengths that you don't want to use.
> >>
> > I can't quite see how slogging thru all the above is going to be easier
for
> > a newbie than buying a Buckmaster OCF or basic trap dipole, buying a
> > ready-made coax jumper of the required length, and then doing plug-
> > and-play with the (typical) rig's built-in auto-tuner. But it probably
> > would be more educational.
>
> Ah, Ed, you have exposed me being shortsighted! I'm a compulsive
> homebrewer, and I never considered buying a ready made antenna. The
> other approach might be quite different than mine, and yet just as valid.
> >
> >> So we end up with an antenna that allows the newbie to get on the air,
> >> allows them to learn some stuff by twiddling knobs and such, then when
> >> they have a bit more experience, they can tackle that more "advanced
> >> antenna" with it's more exacting design, trimming , and measurements.
> >>
> > I'm having a hard time figuring out what antenna type(s) would be "more
> > advanced" than the random-length-doublet-with-outboard-ATU, and
> > yet require more fiddling.
>
> If a person decides to make a trap or even more so a fan dipole, they
> will be doing a lot of cutting and trimming and measuring. I've always
> thought that for a newbie to get their feet wet, the less of that and
> the more on-air experience with adjustments the better.
>
>
> > But I will grant you this: IF someone decides from the get-go that they
> > want a glitzy transmatch at their operating position--whether they need
> > it or not--then the balanced-feeder doublet makes pretty good sense.
> > This would be especially true if there wasn't enough space for something
> > like a Buckmaster OCF, but there was enough space for (say) an 88'
> > doublet.
>
> I've made an 88" doublet for field day. It was a very good antenna on
> 20 and 40 meters, and so-so on 80.(still not too awful bad). I know
> someone is going to ask me to define "Very good". In this case, I
> received many unsolicited comments on good signal strength on 40 and 20,
> had no trouble getting through on first call. On 80 I had to work a good
> bit harder.
>
> It is good to get another perspective on this.
>
>
> - 73 de Mike KB3EIA - -
>
>
> >>
> >>> 2. A good case can be made that choosing the "right" length is

> >>> "better" than a random length, within this type.
> >>> 3. An excellent case can be made that center-fed is NOT always
> >>> the "best" option, within this type.
> >>> 4. I'll let the fans of this antenna type chime in with why they
> >>> prefer balanced tuners and/or tuned feeders to the use of an
> >>> unbalanced tuner... if they want to. (I use more tailored
> > antennas,
> >>> and don't need a tuner of any kind, most of the time.)
> >> As I do now. I've really been smitten with my OCF dipole, fed with
> >> Coax, because in no small part, the feedpoint drops straight down to
my
> >> shack. That coupled with an automatic tuner in my radio , allowing me
to
> >> "plug and play.
> >>
> >> But I still strongly urge newcomers to put up one of those ladder line
> >> dipoles for the experience. They work okay, too! 8^)
> >>
> >>> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote in message
> >>> news:dvhp20$ap9$1@nwrdmz01.dmz.ncs.ea.ibs-infra.bt.com...
> >>>> The best, all round, all band, antenna is a high centre-fed dipole of
> >>>> no particular length, fed with an open-wire feedline of no particular
> >>>> length or impedance, all the way to the shack, used with a
choke-balun
> >>>> and an unbalanced tuner.
> >>>>
> >>>> It is good down to the frequency at which the dipole is about
> >>>> 1/3-wavelength long.
> >>>>
> >>>> Simplicity = efficiency.
> >>>>
> >>>> Once tried you will never return to anything else.
> >>>> ----
> >>>> Reg.
> >>>>
> >>>>
> >>>
> > >
> > >
> > >

3308. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 18:11:56 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12234rh79jg535e@corp.supernews.com>
Source record: 62469

John Popelish wrote:
> Cecil Moore wrote:
>> We already know that, Ian. Please drag out your dusty math book
>> and try to understand the difference between the standing wave
>> current function, func(kx)*func(wt), and the traveling wave
>> current function, func(kx +/- wt). They are obviously different.
>> Calling the standing wave current a "current" is something of
>> a misnomer since it doesn't exhibit the characteristics of a
>> normal current at all. What are the implications of a "fixed
>> phase" for a current, i.e. its phasor doesn't rotate?

The total current ("standing wave current" in Cecil's parlance) certainly does have an associated phase angle, and its phasor certainly does rotate. (By "phase" I mean time phase.) A sinusoidal traveling current wave can be expressed as a phasor whose value is a function of position. When you add a forward traveling wave to a reverse traveling wave, you're adding two phasors. The result is a phasor whose value is the vector sum of those two phasors. This is the total current. It has magnitude and phase like any other phasor, and the same rotational speed as its components. A common manifestation of this is the standing wave pattern along a transmission line.

In a transmission line with two current waves traveling in opposite directions, the phase of the total wave changes with position along the line. Only in the special case where the two waves are equal in amplitude (i.e., when the line is lossless and open or shorted at the end) does the phase of the total current -- the sum of the forward and reverse traveling waves -- turn out to be the same at all points along the line. This can be easily seen from the very well known equations describing wave behavior on transmission lines.

There's no special "standing wave current" that's a "misnomer" or which is a phasor which "doesn't rotate". The total current is indeed a phasor -- its rotation speed is the rotational frequency, 2 * pi * f, just like the traveling wave components from which it can be made by simple addition.

I think the problem Cecil is having with it is that the currents on an antenna behave in a manner that's similar to an open circuited transmission line, which results in the phase angle of the total current -- which can be represented as a phasor -- being the same at every point along the line. The total current isn't current which has "stopped flowing". Like the traveling wave currents it can be split into, it represents the movement -- specifically, the time rate of flow -- of charge. It can be represented by a phasor, which has magnitude and phase like any other. The phase is simply the same at all points along the

line or wire. If the existence of the actual, total current presents problems for an analysis method, the problem lies with the analysis method, not that the total current has the imagined special properties Cecil is claiming.

Once again, any system response such as the voltage across an inductor or the current at any point along an inductor or antenna can be calculated if desired by separately calculating its value resulting from a forward current wave and its value resulting from a reverse current wave. Then the two results can be added together to find the total response. If this sum does not exactly equal the response calculated directly from the total current, then the calculations are being done incorrectly.

Roy Lewallen, W7EL

3309. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 18:16:07 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122353ci5sb807a@corp.supernews.com>
Source record: 62470

Richard Clark wrote:
> On Wed, 22 Mar 2006 13:08:37 GMT, Cecil Moore <mycall@hotmail.com>
> wrote:
>
>> False! Gene Fuller, Tom Donaly, and Roy Lewallen have all made
>> postings that support my side of the argument against yours.

There's very little about Cecil's theories that I agree with. He's made many statements which are completely false as I've pointed out numerous times, and his conclusions are largely based on misconceptions and faulty understanding of basic principles.

Roy Lewallen, W7EL

3310. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 18:35:12 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <DpmdnV5dpJwYCrzZnZ2dnUVZ_vudnZ2d@adelphia.com>
Source record: 62471

Roy Lewallen wrote:
(snip)
> I think the problem Cecil is having with it is that the currents on an
> antenna behave in a manner that's similar to an open circuited
> transmission line, which results in the phase angle of the total current
> -- which can be represented as a phasor -- being the same at every point
> along the line. The total current isn't current which has "stopped
> flowing".

He is so close, but still has a couple misconceptions blocking him.

3311. Re: Wideband Folded Loop Construction Details

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 18:39:22 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <12236f1jpu04sd2@corp.supernews.com>
Source record: 62472

Hello Bob and tnx for the reply. Check out http://www.rys.nl/wfl.html

this one doesn't look like a dipole and a 7.5 by 1 meter space is all the space it takes up. There are no close up photos of the configuration, and can't tell where feed point is. I'm just full of no information today :o) I did a google search for wideband folded loop antenna, and was presented with this beauty of an antenna, but, like I said, no wiring details and it sells for 400.00!! You just must roll your own.

Butch

Bob Bob wrote:
> Hi Butch
>
> Are you talking about the terminated folded dipole antenna?
>
> Mr Cebik has a rundown on them at;
>
> http://www.cebik.com/wire/wbfd.html
>
> and says that the antenna is "typically" 90ft long for 80-10m. There is
> however a non trivial loss at 80m you may want to check on.
>
> If you like "no tuner" also consider Cecils w5dxp's doublet at;
>
> http://www.qsl.net/w5dxp/notuner.htm
>
> That uses sections of 450 ohm feedline that are swicthed in and out of
> circuit.
>
> Cheers Bob W5/VK2YQA
>
> Butch Magee wrote:
>
>>
>>
>> Geltlemen,
>> I have been considering the Wideband Folded Loop (WFL)

3312. which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 18:55:14 UTC
From: RB <rbig@bellsouth.nospam.net>
Message-ID: <x1hUf.894$qe.854@bignews1.bellsouth.net>
Source record: 62473

Here's one for all our experts and gurus out there:

Consider a 140' dipole up at 40' height. Used on 160-10m

Other scenario is a 50' top loaded vertical, with 4 radials, 70' each, used on 160-20m.

The question is which antenna gives us more radiated energy going out in useful directions?

A fair amount of the dipole energy goes into the ground. Another big chunk goes into cloud warming. That leaves some energy going out at elevations which are useful to us.

The vertical doesn't do much cloud warming. It does have some energy going to ground, but probably less than the dipole. However, it doesn't have nearly as much radiating surface as the dipole has. But, being top loaded, it does tend to get the current node maxed on the available vertical (radiating) surface.

So, holding power input constant, etc, which antenna gives us the more useable rf energy output for hamming on 160-20m?

3313. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 19:28:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <LzhUf.58446$H71.47270@newssvr13.news.prodigy.com>
Source record: 62474

John Popelish wrote:
> Since, in both standing
> waves and traveling waves, current at a point, changes magnitude and
> sign in exactly the same way (at a point, they are indistinguishable),
> they can both be described with phasor notation.

Limiting oneself to a point measurement is handicapping onself. When
the equation for standing wave current is compared to the equation
for traveling wave current, the real differences are obvious.

> For standing waves, the phasor of a neighboring point has the same phase
> shift, ...

Exactly! Therefore, it cannot be used to measure the phase shift
through a coil or even through a wire.

> But at any point along both standing waves and traveling waves, there
> certainly is a phasor that represents the current at that point.

For the standing wave current it is a phasor that doesn't rotate
all up and down the wire. You have to admit, that's a weird phasor.
It's more akin to DC than anything else.

> You need to get past this misconception that standing waves are not
> current and are not describable by phasors.

Standing waves current is the superposition of two essentially equal
currents traveling in opposite directions. If it was equal DC
currents traveling in opposite directions, what would the net current
be?
--
73, Cecil http://www.qsl.net/w5dxp

3314. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:05:05 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <_5iUf.29$163.18@fe08.lga>
Source record: 62526

>> Ian White GM3SEK wrote:
>>
>> All the questions you ask other people are rooted in your own
>> misconceptions. In other words, the questions are rigged so that they
>> cannot be answered except by agreeing with you.
>

>Cecil, W5DXP wrote:
> No, Ian, my questions are rigged so they cannot be answered except
> by agreeing with the laws of physics and gurus cannot afford to show
> their ignorance of the laws of physics. That leaves them between a
> rock and a hard place as far as answering my questions are concerned.
> That's the only reason for the "Silence of the Gurus".
> --

Esteemed gentlemen:

I am more of an engineer, inventor rather than scientist, analytic, cosine kind of guy. But I will elevate myself on an occasion to find the root of the problem and proof if needed. Let me try to put the things in perspective, from real life facts, to this "scientwific" debate about the "problem".

1. First I was smacked by the fact that on my 80m Hustler resonator, I re-shrinked, (burned) the insulation on the coil from the bottom up, while operating contest, mobile from Toronto, while spending few last days with my dear mother. I was running about 600W to regular (200W) 80m coil with heavier duty transmitting, during the contest, it was no surprise that it melted the heat shrink tubing covering the turns.
Most people make occasional transmission and do not fry the coil even with more that what it is rated for. On 40m and up I rewound other coils with heavy wire or tubing and extended whips. I would not see the problem there.
I appeared to me strange that the bottom of the coil was fried. Normally I would have expected either "uniform frying" , or perhaps more on the top due to the raising, accumulating heat.
It kind of bothered me, because it was against the conventional "wisdom" or what I knew.

2. When the topic came up, Barry, W9UCW, knew about the effect and done some real life, real antennas, real RF ammeters measurements and found out that indeed, the RF current at both ends of a typical loading coil (quarter wave resonant, coil loaded vertical antenna) is different. He described it, offered some photos and data about the measurements.
Please see http://www.k3bu.us/loadingcoils.htm
In his example he showed that 40m typical, loaded vertical, had about 40% less current at the top than at the bottom. That made me happy, it made

sense and explained what was happening with my Hustler. So I got some insight into the workings of the loaded, shortened radiator or element. Reality agreed with engineering measurements, experiment, that anyone can reproduce and verify.
The conclusion was:
"There IS a drop, difference in RF current across the antenna loading coil."
The significance (to me anyway): Efficiency of the radiator, antenna is proportional to the area under the (cosine) curve of the current distribution across the radiator. The loading coil, as it turned out, had significant contribution to that current distribution that it got my attention. Knowing the effect, we can play with different position of the loading coil within the radiator and experiment with various ways of top loading, to maximize the current flow within the desired portion of the radiator, to maximize the area under the cosine current curve - to maximize the efficiency under given restriction for the particular antenna design. Here comes the compromise between loading inductance (coil, stub) vs. capacitive hat (T, L, disk) loading.
So in the typical loaded (mobile or shortened) vertical we are trying to maximize the efficiency and it is important to know what is the current distribution across the radiator. If the coil has a drop in order of 40 - 60% as it appears to be, than that is significant to me to take it into the account. Knowing how to apply this effect will allow me to optimize, maximize the antenna performance.
So far with me? If not, ask the questions or tell me where I am wrong.

3. Then Tom, W8JI and his followers, with some "backing" from literature (plenty are wrong), some experiments, modeling, came to "prove" that it can't be so. His conclusion: "The current in the antenna loading coil is the same at both ends". Then the "fight" and controversy started.
It appears to me that JI camp is coming from the theoretical end of it, applying laws of physics and theories that do not apply to the case in question.

4. Cecil, W5DXP came to the rescue by explaining and modeling the case and supporting K3BU/W9UCW case and reality. We were happy to have that support, shining more light on the scientific side of the effect and effort to correlate the crude observations, real life measurements with theory, modeling and analytical end of it.

5. Not so fast. JI camp vehemently defended their "equal current" case, using examples, modeling, tailored to support their claims, for some reason ignoring the reality, measurements, experiments done to set the coil in the spot where current can be, and is the same (no argument with that).

6. Cecil, W5DXP started to dig deeper into the effect, showed that if we model the coil as a loading stub, EZNEC shows the difference in the current. When modeled as a solenoid, it also shows the difference. When the loading is inserted as a simple L (zero physical size) inductance, then EZNEC "proves" that current is the same. So for the same inductance, of different physical model (same electrical) properties EZNEC "proves" that each camp is "right". The only problem is, which case represents the reality and should

be taken seriously.
To prove the point further, Cecil showed that positioning the coil in various position within the radiator, one can aggravate the difference in current at the ends from one extreme of being equal, to the other extreme of being max at one end and zero at the other, depending on the size of inductor, position within the antenna and frequency applied. To me it makes sense, explains the "workings" of the effect, puts some numbers on it and shows how to model it, apply it and UNDERSTAND it. That's the way IT IS - the reality. Anyone can verify it, do the experiment (otherwise, please prove us wrong and where) and now - even model it in EZNEC when using proper definition of the model coil (solenoid or loading stub of equivalent inductance).

7. No, Cecil, didn't do the stupid mobile antenna trick with quarter wave extension. He used it as an example to show how one can play with the model to see the different situations and show that current can be from equal to extreme (max to zero) across the loading coil. In the EZNEC you can vary the position of the coil (solenoid or stub), length of the radiator and frequency to see the current value and distribution across the coil/radiator. Thanks to Cecil (and "solenoid" Roy), we have now improved way of modeling the effect, understanding it and better way of applying to antenna design. Thanks Cecil, you have golden patience, persistency and are a great defender of the TRUTH!

8. But Noooo! W8JI camp and non-believers can not accept that (reality). They cling to the "explanations" why it can't be so, because of "purple electrons, phasor eating extremists" would not allow it to be so. They are dancing around the facts and examples of why it is not so, not answering latest W5DXP questions, but the main thing - not verifying the reality with proper experiment or measurement (not important?). They are trying to prove that reality isn't, Tesla and others are fools, because of what??? Pride? Can't be wrong? Emperor has equal current clothes?

9. If anyone is trying to argue the case that (eventually) current is (or close to) equal, by arguing that sticking the coil at the base or where there is virtually no difference because of the position of the coil and current distribution in the radiator, forget it. We are not arguing that (and we agree with THAT special case). We are arguing with general statement, as displayed on W8JI pages and argued by the "guru followers" that the "RF current across the antenna loading coil IS (always) the same" (or close, losses, bla, bla) in the TYPICAL loaded or mobile antenna. NOT in the special case where it indeed can be. THAT WAS the subject of the discussion and problem that started all of this. Not current in ANY coil, in ANY circuit. We are not arguing minute diffrences due to radiation, resistance, capacitance surface effect, etc., we are arguing the difference of a 40 - 60 % of current drop across a typical loading coil in a typical mobile or loaded antenna.

10. According W8JI camp, looking at the quarter wave loaded whip, the current goes up the radiator according to cosine curve, then is the same across the coil, then tapers to zero at the tip in the triangular shape

(should be the rest of the cosine curve, but close enough approximation). We are talking about typical loaded resonant quarter wave ant, (not any coil in any circuit).

11. According to K3BU camp, the same happens as above, except the current across the coil drops at the top of the coil to typical 60 - 40 % (for 80 - 40m) and then tapers to zero at the tip. Again, (I hope no dispute over this) efficiency of the antenna is proportional to the area under the current distribution curve across the radiator with the loading coil. So according to W8JI camp, the loaded radiator would have better efficiency than it really has, by about 60 - 40 % of the above the coil current curve area.

12. To me this is significant and worth exploring, because knowing the effect will allow me to better design, model and optimize antenna systems with loaded elements. The difference in the amount of current in the remaining portion of the antenna is not negligible and the effect will magnify itself when designing multielement loaded antennas. If the model shows wrong amounts and distribution of the current, the results will be off and real antenna will not perform as modeled. Those ARE the currents we consider in modeling, show their distribution off and calculate the antenna parameters with (right Roy?) So, to some the whole argument may be insignificant, to me it is, it should be known, properly considered and applied in the antenna modeling and design, otherwise it could cause inaccuracies and wrong results.

13. So where are we now? We have the effect, we have the measurements, we have explanation, we have the recipe how to model it properly, we have some results. Others can duplicate and verify it. (And answer the frickin Cecil's questions!!!!)
Then we have W8JI camp that insists that it ain't so, twisting and dancing trying to "prove" that it just can't be so. Using "arguments" of their own, often contradicting themselves (ooops) that it just couldn't be, because, because, because....
Well, IT IS, if your egos like it or not. It is almost amusing to read the thread and arguments trying to defy the reality by "scinetwific proof". Cecil's arguments and question are selectively ignored and not argued, while new twists and detours are brought in.

14. So if the W8JI camp can not swallow reality, so be it, eventually live with giant egg on the face. I am extremely grateful to W9UCW, W5DXP and others in "our" camp for their contribution to the discussion, explanations, shedding their light and wisdom on the subject (and patience, and persistence). I have learned more about the loaded antennas and will use it especially in the design of receiving arrays for the new Tesla Radioclub salt water marsh 175 acre antenna farm (www.TeslaRadio.org)

15. One more time, friendly advise to Tom, W8JI: If you strongly defend posting the truth on Internet, live by it. It takes big guy to admit being wrong, learn and give credit where it is due! Ridiculing someone being wrong, especially when he is right is not in the spirit of ham radio and decency. Playing guru, engineer and pontificating might go well on TV show

but in real life there are consequences. Arguing on a wrong side, then after realizing being wrong, going QRT for a while and then emerging as a guru and portraying the subject as own invention, without giving credit to "arguer" smells with plagiarism. I am saying this here, because I was few times publicly ridiculed by Tom while being right, as he later confirmed by eventually propagating "my gospel" as his own. We should be engaging in civil discussions and arguing about the topics, so we can all learn and be better. If this whole exercise will contribute to that, then it was worth it. If not, then keep on truckin'.

16. To the rest of the readers, I though that by now we all would be on the same "camp reality", but looks like there is still a rocky road ahead. I think we will get better results and go to radio heaven for sticking to the "current in loading coils" truth. I promised comprehensive article on the subject, but life keeps throwing more important problems in my path, but I will try hard to do it soon. We shall summarize our camp's wisdom and hope for convincing case for the unbelievers.

I tried to portray the picture of reality and significance of the subject in hope of bringing the refusniks aboard. You all can be the judges of what good it was.

We could look at some other "gospels" at Tom's web site, but that is another story when subject comes up. (All in the name of dispelling the myths and old waives tales as Tom likes to do.) I don't like to pick a fight, but I don't stand by when there is a significant myth or wrongo being propagated, I will defend the truth with my last breath (if it is worth it :-)

I think 'nuf said, we all did our best to conway the reality, the readers can draw their own conclusions and if important, verify this and that to see who is RIGHT and if they can benefit from the findings. Good luck and I rest my "piece of coil".

73 Yuri Blanarovich, www.K3BU.us

3315. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:05:25 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <85ydnUdYMN0xMbzZnZ2dnUVZ_vednZ2d@adelphia.com>
Source record: 62475

Cecil Moore wrote:
> John Popelish wrote:
>
>> Since, in both standing waves and traveling waves, current at a point,
>> changes magnitude and sign in exactly the same way (at a point, they
>> are indistinguishable), they can both be described with phasor notation.
>
>
> Limiting oneself to a point measurement is handicapping onself. When
> the equation for standing wave current is compared to the equation
> for traveling wave current, the real differences are obvious.

I was just making sure we were using the same definitions for things
like current and phasors. You are jumping ahead. :-)

>> For standing waves, the phasor of a neighboring point has the same
>> phase shift, ...
>
>
> Exactly! Therefore, it cannot be used to measure the phase shift
> through a coil or even through a wire.

I agree, unless you use phase measurement to hunt for the location of
the current nodes that have moved as a result of adding the coil.
Finding a phase reversal at opposite ends of the coil, for instance,
implies that an odd number of nodes reside in the coil.

>> But at any point along both standing waves and traveling waves, there
>> certainly is a phasor that represents the current at that point.
>
> For the standing wave current it is a phasor that doesn't rotate
> all up and down the wire.

A phasor rotates at the reference frequency, and with a phase angle
that represents the angular difference between the value in question
and the reference cycle. Pick a point on the conductor, and if it
carries either a standing or traveling wave (or any combination of
traveling waves at the reference frequency), the current at that point
is describable as a phasor (having a specific magnitude, and a
specific phase with respect to the reference cycle).

> You have to admit, that's a weird phasor.
> It's more akin to DC than anything else.

This is your mental block. A phasor describes the activity at a
point, not whether that activity is a result of an energy wave moving

past in one direction, the other, or some combination of those.

>> You need to get past this misconception that standing waves are not
>> current and are not describable by phasors.
>
>
> Standing waves current is the superposition of two essentially equal
> currents traveling in opposite directions.

No. Currents do not travel. Current is the movement of charge past a point. Cyclic current is a sloshing back and forth of charge at some frequency. If you want to picture that process with respect to time, you can refer to it as a cycle or wave, but it is a wave on a scope trace or time graph, not a physical wave of something moving along a wire. The physical wave is charge slushing back and forth along the wire.

Both traveling energy waves and combinations of them (standing waves, for example) involve energy traveling in various directions, but the current does not travel. It occurs at a point, as charge moves back and forth past that point. When you can separate the concept of current from the concept of energy waves, you might see this snap into focus.

I am not trying to be the guru, here. My earlier posts confused these same concepts, when I mentioned current waves traveling in various directions. I was mistaken, and have seen my error, and am trying to get you to see it, also. I should have been speaking of charge waves that produce current. Correct thinking requires correct speaking. You cannot be sloppy with words and have (let alone express) clear thoughts. This thread has done a lot to help me clear up both my words and thoughts, and I thank you for that. I am not absolutely sure that I have eliminated all mistakes from this way of talking about the process under discussion, so I may have to make some more corrections. That is the reason I am watching this thread.

> If it was equal DC currents traveling in opposite directions,
> what would the net current be?

Their algebraic sum, same as for non equal currents. Same for any combination of currents that result from charge being shoved back and forth by passing energy waves. Instantaneously the current is the algebraic sum of all components passing through that point. If the components are AC at the same frequency, the sum will be some resultant instantaneous current that varies with that same frequency.

I think I agree with just about every conclusion you are making about treating coils as slow wave transmission lines. The nits I am picking is in the language you are using to describe these effects to justify those conclusions. I think terminology is at the root of most of the disagreements in this thread.

3316. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:06:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <h7iUf.49374$F_3.39324@newssvr29.news.prodigy.net>
Source record: 62527

Roy Lewallen wrote:
> The total current ("standing wave current" in Cecil's parlance)
> certainly does have an associated phase angle, and its phasor certainly
> does rotate.

The standing wave current phasor in a 1/2WL thin-wire dipole *DOES
NOT ROTATE* and is fixed *CONSTANT AT ZERO DEGREES*. Please reference
Figure 14-2 in Kraus' "Antennas for All Applications", 3rd edition,
page 464. It shows *ZERO* phase shift in the standing wave current
from tip to tip in the 1/2WL thin-wire antenna. It is obvious from
the standing wave current equation that the phase angle doesn't
change with position.

This one misconception is what has got you and Tom totally confused.
Please correct your misconception. It's the forward current phasor
and reflected current phasor that does the rotating. Since they are
rotating in opposite directions, the phasor sum of those two
phasors is essentially *CONSTANTLY ZERO ACCORDING TO Kraus*.

> (By "phase" I mean time phase.) A sinusoidal traveling
> current wave can be expressed as a phasor whose value is a function of
> position. When you add a forward traveling wave to a reverse traveling
> wave, you're adding two phasors. The result is a phasor whose value is
> the vector sum of those two phasors. This is the total current. It has
> magnitude and phase like any other phasor, and the same rotational speed
> as its components. A common manifestation of this is the standing wave
> pattern along a transmission line.

Roy, those two phasors that get added are *ROTATING IN OPPOSITE
DIRECTIONS!* The phase of the sum of those two phasors is *CONSTANT*!
If you had read: http://www.qsl.net/w5dxp/current.htm you would
know that already. That's the mistake that you and Tom have been
making for years and you are still making the same arrogant mistake.

Don't you believe what Gene Fuller posted?
****
>> Regarding the cos(kz)*cos(wt) term in a standing wave:
>
> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really an amplitude

>> description, not a phase. The so-called "phase reversal" in longer antennas is
>> not really about phase either. It is merely a representation of the periodic
>> sign reversal seen in a cosine function.
****

> In a transmission line with two current waves traveling in opposite
> directions, the phase of the total wave changes with position along the
> line.

No, it does NOT! at least not by more than a few degrees. In
Func(kx)*Func(wt), the phase is divorced from position on the line.
If you don't believe me, would you believe EZNEC? When I told Tom
that I had measured unchanging phase all along a dipole, you said
EZNEC shows the same thing.

> Only in the special case where the two waves are equal in
> amplitude (i.e., when the line is lossless and open or shorted at the
> end) does the phase of the total current -- the sum of the forward and
> reverse traveling waves -- turn out to be the same at all points along
> the line. This can be easily seen from the very well known equations
> describing wave behavior on transmission lines.

That's true. Now take a look at Kraus' diagram referenced above. Kraus
assumes the forward current and the reflected current on a 1/2WL thin-
wire dipole are *EQUAL* in magnitude. The same assumption is approximately
true for a 75m mobile antenna.

> There's no special "standing wave current" that's a "misnomer" or which
> is a phasor which "doesn't rotate". The total current is indeed a phasor
> -- its rotation speed is the rotational frequency, 2 * pi * f, just like
> the traveling wave components from which it can be made by simple addition.

Sorry, Roy, you are just wrong on that one. Please dust off your old
math book. Func(kx)*Func(wt) DOESN'T ROTATE with 'x'. For any 'x', it
just stands there exchanging energy between the E-field and H-field.

> I think the problem Cecil is having ...

Methinks you had better do something about that beam in your own eye
rather than worry about the speck in mine.

>... with it is that the currents on an
> antenna behave in a manner that's similar to an open circuited
> transmission line, which results in the phase angle of the total current
> -- which can be represented as a phasor -- being the same at every point
> along the line.

That's not a problem. That's exactly what Kraus and EZNEC both say.
You are the one having a problem with it and you really need to correct
your misconceptions before the discussion can progress.
--
73, Cecil http://www.qsl.net/w5dxp

3317. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:08:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <a9iUf.49375$F_3.5449@newssvr29.news.prodigy.net>
Source record: 62528

Roy Lewallen wrote:
> There's very little about Cecil's theories that I agree with.

But you did say EZNEC agreed with the phase measurements
I reported for my dipole, i.e. so close to zero I couldn't
tell any difference from zero.

This leaves you in the unenviable position of disagreeing
with (EZNEC and me).
--
73, Cecil http://www.qsl.net/w5dxp

3318. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:11:01 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <pbiUf.49377$F_3.32544@newssvr29.news.prodigy.net>
Source record: 62529

John Popelish wrote:
> He is so close, but still has a couple misconceptions blocking him.

If those are technical misconceptions, please
let's discuss them. Last time, when I rewrote
my posting to make the meaning clearer, you
agreed with it. Perhaps, this is also another
example of my poor writing style.
--
73, Cecil http://www.qsl.net/w5dxp

3319. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:12:34 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <SciUf.49378$F_3.24299@newssvr29.news.prodigy.net>
Source record: 62530

RB wrote:
> The question is which antenna gives us more radiated energy going out in
> useful directions?

Please define what "useful directions" personally means to you.
I prefer NVIS for "useful directions".
--
73, Cecil http://www.qsl.net/w5dxp

3320. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:17:42 UTC
From: Martin Krawczyk <krafty@iborg.fsnet.co.uk>
Message-ID: <GhiUf.266948$YJ4.220460@fe2.news.blueyonder.co.uk>
Source record: 62532

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:98u2225s79cf2cth9dku65d7ni07e59jvf@4ax.com...
> On Wed, 22 Mar 2006 10:36:48 +0100, Deni <telegrafiste@tiscali.fr>
> wrote:
>
> >looking for any tips advice etc.
>
> Hi Deni,
>
> Make sure you are not violating any civil airspace rules. One
> consideration is how do you insure your balloon will not escape?
> Another consideration is to make sure the balloon is some distance
> away from the end of the wire. Tying the wire to the balloon invites
> the high potential at the end of that wire to explode *POP* the
> balloon.
>
> 73's
> Richard Clark, KB7QHC

also take into acount weather conditions. i have had experience of a much
larger balloon which acted like a lightning magnet.

3321. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:19:31 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <dvsbgj$888$2@engnntp2.cig.mot.com>
Source record: 62537

Howard,
If you mean the polarization (horizontal vs. vertical), yes.
73, Steve, K9DCI

"Howard W3CQH" <hgorden@adelphia.net> wrote in message
news:zPGdnR_G5aU_Cr3ZRVn-gA@adelphia.com...
> Question - Is the polarity of the antenna based on the feed point?
>
> 73's
>
>

3322. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:21:40 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ividnQajZdXmLbzZ4p2dnA@adelphia.com>
Source record: 62531

Cecil Moore wrote:
> John Popelish wrote:
>
>> He is so close, but still has a couple misconceptions blocking him.
>
>
> If those are technical misconceptions, please
> let's discuss them. Last time, when I rewrote
> my posting to make the meaning clearer, you
> agreed with it. Perhaps, this is also another
> example of my poor writing style.

Or another mistake on my part. I am more interested in clearing up the later. As far as what is happening in a loading coil, I am in general agreement with you and EZNEC. It is only the details of the discussion of the cause that I am still tripping over.

It may be you or I may have an untied shoe.

3323. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:27:13 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <KqiUf.30$163.28@fe08.lga>
Source record: 62533

If you can answer which is best: Mac truck or Corvette?
We can answer your question.

It depends on lot of things, what you want to do with it (who to communicate with, where, when, what band) etc.
You need to consider propagation modes and nuances
Know the antenna patterns for particular band
Antennas are a fascinating subject and there is a lot of information in the literature and worth studying if one is serious about operating on the bands.
Knowing that, one could do good job in selecting or designing the antennas for particular task.

Yuri, K3BU.us

3324. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:36:00 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QyiUf.49388$F_3.40441@newssvr29.news.prodigy.net>
Source record: 62534

John Popelish wrote:

> Cecil Moore wrote:
>> Exactly! Therefore, [standing wave phase] cannot be used to measure the phase shift
>> through a coil or even through a wire.
>
> I agree, unless you use phase measurement to hunt for the location of
> the current nodes that have moved as a result of adding the coil.
> Finding a phase reversal at opposite ends of the coil, for instance,
> implies that an odd number of nodes reside in the coil.

John, I didn't say the amplitude couldn't be used to determine
phase. The current nodes are associated wiht amplitudes, not phase.

> A phasor rotates at the reference frequency, and with a phase angle that
> represents the angular difference between the value in question and the
> reference cycle. Pick a point on the conductor, and if it carries
> either a standing or traveling wave (or any combination of traveling
> waves at the reference frequency), the current at that point is
> describable as a phasor (having a specific magnitude, and a specific
> phase with respect to the reference cycle).

Yes, but the standing wave phasor doesn't change phase with position.
The traveling wave phasors change phase with position. That's a big
difference.

> No. Currents do not travel. Current is the movement of charge past a
> point.

So current doesn't flow and all the references to "current flow" are
wrong? If so, your task is a lot bigger than mine. May I suggest a
new thread titled, "Current Doesn't Flow".
--
73, Cecil http://www.qsl.net/w5dxp

3325. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:47:50 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <WJiUf.49390$F_3.49198@newssvr29.news.prodigy.net>
Source record: 62536

John Popelish wrote:
> It may be you or I may have an untied shoe.

In any case, Jim, oops, I mean John, here's the IEEE Dictionary's
definition of current.

"current - The flow of electrons within a wire or a circuit:
measured in ampheres." And no, there is no definition for
"current flow" in the IEEE Dictionary.

"Current flow" and "power flow" are commonly used terms to
signify "charge movement" and "energy movement". Objecting
to the use of the words "current flow" is really picking at
infinitessimal nits.
--
73, Cecil http://www.qsl.net/w5dxp

3326. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 20:47:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1223dvop83mkq9a@corp.supernews.com>
Source record: 62535

John Popelish wrote:
> . . .
> I think I agree with just about every conclusion you are making about
> treating coils as slow wave transmission lines. . .

A coil itself isn't a slow wave transmission line. In conjunction with shunt C, it can be analyzed as a transmission line, but only in conjunction with shunt C. Remove the shunt C and it ceases looking like a transmission line. The earlier example of the modification to Cecil's EZNEC model illustrated this -- when the ground (the other side of the shunt capacitor) was removed, the current drop across the coil disappeared.

As far as considering a coil itself as a "slow wave structure", Ramo and Whinnery treat this subject. It's in the chapter on waveguides, and they explain how a helix can operate as a slow wave waveguide structure. To operate in this fashion requires that TM and TE modes be supported inside the structure which in turn requires a coil diameter which is a large part of a wavelength. Axial mode helix antennas, for example, operate in this mode. Coils of the dimensions of loading coils in mobile antennas are orders of magnitude too small to support the TM and TE modes required for slow wave propagation.

Roy Lewallen, W7EL

3327. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 21:12:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <f5jUf.49396$F_3.14785@newssvr29.news.prodigy.net>
Source record: 62538

Roy Lewallen wrote:
> A coil itself isn't a slow wave transmission line. In conjunction with
> shunt C, it can be analyzed as a transmission line, but only in
> conjunction with shunt C.

A 75m bugcatcher has its own shunt C called "distributed capacitance".
It's what causes the self-resonant frequency of my 75m bugcatcher coil
to be only 60% higher than the 4 MHz operating frequency.

> Remove the shunt C and it ceases looking like a transmission line.

That's true *only* for a lumped-circuit inductance. It is NOT true
for a 75m bugcatcher which has it very own distributed capacitance
built in. It is *IMPOSSIBLE* to remove the distributed shunt
capacitance from a 75m bugcatcher coil.

> The earlier example of the modification to Cecil's
> EZNEC model illustrated this -- when the ground (the other side of the
> shunt capacitor) was removed, the current drop across the coil disappeared.

That may be true but please tell us how to remove the ground from a
75m mobile bugcatcher mobile antenna installation.

> Coils of the dimensions of loading coils in mobile
> antennas are orders of magnitude too small to support the TM and TE
> modes required for slow wave propagation.

Sorry Roy, Dr. Corum disagrees with your statement. You really should
read the details of the Dr. Corum web page references that I posted.

His test for the validity of his helix equations is:

5*N*D^2/lamda(0) <= 1 where N is number of turns, D is diameter,
and lamda(0) is the self-resonant frequency.

That value for my 75m bugcatcher coil is 0.4 so his equation for
velocity factor is valid. The velocity factor for my 75m bugcatcher
coil calculates out to be 0.0175. Now that's what I call a "slow
wave" coil.

But I have offered all these references weeks ago. Are you too
arrogant to even have read them? (Another rhetorical question)
--
73, Cecil http://www.qsl.net/w5dxp

3328. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 21:17:27 UTC
From: RB <rbig@bellsouth.nospam.net>
Message-ID: <Q6jUf.440$yn4.121@bignews7.bellsouth.net>
Source record: 62539

If we get rid of cloud warming angles of elevation, I guess we're left with NVIS. I think that's what I would call a useful direction.

3329. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 21:50:05 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <hEjUf.49401$F_3.17999@newssvr29.news.prodigy.net>
Source record: 62540

RB wrote:
> If we get rid of cloud warming angles of elevation, I guess we're left with
> NVIS. I think that's what I would call a useful direction.

NVIS *IS* cloud warming angles of elevation. Those are the
ones I prefer for my type of operation. Who wants to talk
to strangers who don't speak Texan? :-)
--
73, Cecil http://www.qsl.net/w5dxp

3330. Re: Wideband Folded Loop Construction Details

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 22:16:08 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <9uu8f3-uks.ln1@p400bob.personal.cox.net>
Source record: 62543

Hi Butch

Okay it looks like a T2FD that has been folded over. Usually they have a load resistor (600 ohms maybe) and a toroid matching transformer at the feedpoint. (The antenna is close to 600 ohms without the transformer) Cebik explains how much loss this system incurs so you can make some judgements from that. The smaller capture area than a "real" T2FD may mean another 3-6dB or so of loss.

You might like also to look at a magloop generally. ie a loop antenna with a tuning cap at one location. I have seen these described as working well over a 2:1 freq range (eg 80 and 40m) and a few quoting 3:1. You usually need to remote tune them though with something like a srewdriver motor. As mentioned in the advert one of their claims to fame is lower received noise and with the tuning less off frequency interference issues.

Whats your application, what bands do you want to cover and what space do you have?

Bob

Butch Magee wrote:
>
>
> Hello Bob and tnx for the reply. Check out http://www.rys.nl/wfl.html
> this one doesn't look like a dipole and a 7.5 by 1 meter space is all
> the space it takes up. There are no close up photos of the
> configuration, and can't tell where feed point is. I'm just full of no
> information today :o) I did a google search for wideband folded loop
> antenna, and was presented with this beauty of an antenna, but, like I
> said, no wiring details and it sells for 400.00!! You just must roll
> your own.
>
> Butch
>

3331. Multiband Dipole Angles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 22:17:19 UTC
From: Troy Majors <leica3f@earthlink.net>
Message-ID: <P1kUf.9143$sL2.6368@newsread2.news.atl.earthlink.net>
Source record: 62541

What effect will the following have:

both legs of the multiband dipole 60 to 65 feet up in the air cannot be in a straight line, but one leg must vary from a true north-south diple to the northeast at about a 35-40 degree angle from the other leg. Also, both legs slant downward in a slight inverted-V configuration, probably about 20-25 degrees. The feed line will come straight down at a 90 degree angle from the dipole legs, but will then split the difference in its horizontal move along the ground to the house. How much do I lose from all this compared to a dipole with both legs straight in line, and the feedline 90 degrees from the dipole both vertically and horizontally?

All this is driven by the size of the lot, the placement of the trees in the back and front yards, the direction and density of the various limbs off the trees, and the level of my skill with a slingshot. I have the pilot ropes in place but have not raised the antenna yet. Any advice before I commit to this configuration?

Thanks,
Troy

3332. Radials

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 22:42:47 UTC
From: hasan schiers <schiers@netins.net>
Message-ID: <dvsjt8dis1@news.netins.net>
Source record: 62542

I'm having trouble resolving the values produced by Reg's "Radials2" program and the excellent section in ON4UN's Low Band DX'ing, 4th Edition.

Reg's work seems to be saying that placing radials on the ground shorten their resonant point such that having radials the recommended 1/4 wave physical length is not necessary, or even desirable. When I played with the program, the losses reported by Reg's program with radials as short as 10 or 20 feet were quite low, with sufficient number of them. Is this overly optimistic? (1/4 wave vertical)

Here are the points of departure that I'm having trouble "resolving".

Quoting from Chapter 9, section 10, Part 2.1.2:

"A 1/4 wave wire that is resonant above ground, is no longer resonant on or near the ground. Typically for a wire on the ground, the physical length for 1/4 wave resonance will be approximately 0.14 wavelength." (the exact length depending on ground quality)" This seems to agree at least somewhat, with Reg's assumptions in his program.

However, when we get to section 2.2.3 (again in Chapter 9, section 10), John asserts:

"As soon as you use a larger number of equally spread radials, the RESONANCE EFFECT DISAPPEARS, and the radials form a disk, which becomes a screen with NO resonance characteristics. In this case, we no longer talk about length of radials, but about the diameter of a disk hiding the lossy ground from antennas." Unless I misunderstood Reg's program, it seems to maintain the idea of velocity factor/resonance in radials, no matter how many there are.

John Devoldre (ON4UN), then goes on to describe the early work by Brown, Lewis and Epstein, as well as the exquisite study done by N7CL where he developed a formula for optimizing radial systems based on amount of available wire.

The magic number for efficiency in a radial field appears to be 0.015 wavelength tip to tip spacing at the radial perimeter. Fewer wires and larger spacing degrade the radial field performance. More wires and closer spacing do not improve performance significantly. The formula looks like this:

N = ((2*PI*L)^0.5)/A

Where N = the number of radials, L = the amount of available wire and A = the tip to tip distance (1.3 meters for the 80m band)

For 500 meters of available wire, the most efficient use of the wire is:

N = ((2*PI*500)^.5)/1.3 or 43 radials.

The length of the radials is 500 meters/43 or 11.6 meters long. This arrangement maintains the .015 wavelength tip to tip separation at the perimeter.
==========

Now, the case for perfection:

Section 2.1.3.2

"From these almost 70 year old studies (BLE), we can conclude that 60 1/4 wave long radials is a cost-effective OPTIMAL, solution for amateur purposes. The following rule was EXPERIMENTALLY derived by N7CL and seems to be very sound and easy one to follow."

"Put radials down in such a way that the distance between their tips is not more than 0.015 wavelength. This is 1.3 meters for 80 meters and 2.5 meters for 160 meters." The circumference of a circle with a radius of 1/4 wavelength is 2*PI*0.25 = 1.57 wavelength. At a spacing of 0.015 wavelength at the tips, this circumference can accommodate 1.57/0.015 = 104 radials. With this configuration you are within 0.1 dB of maximum gain over average to good ground. If you space the tips 0.03 wavelength, you will lose about 0.5 dB."

"In general, the number that N7CL came by experimentally, closely follow those from Brown, Lewis and Epstein."
==========

Now, Reg has in the past, objected to the BLE data because they didn't measure ground conditions. This issue is dealt with by N7CL, but it is too rigorous for me to type into this message. Suffice it to say, the formula appears to hold NO MATTER WHAT the ground conditions are like....i.e., the best use of an available length of radial wire (several hundred meters), is the formula listed above, and there is no resonance effect, no velocity factor effect (that is meaningful)...

This seems to challenge, at its core, Reg's assumptions for his program on radials. Or am I missing something?

There is no doubt that there is some agreement with Reg, but there are several points of departure, that strangely enough lead us back to B,L and E as being the most authoritative and experimentally verified data. That is not to say the B,L & E data is very well explained....but...with the addition of N7CL's work, radials are now "manageable for the masses", and the two studies appear to agree.

Anyway, I found this stuff a lot more interesting than the endless bickering about magical properties of phasors, lumped constant vs. distributed networks, and when is an inductor an inductance, ad nauseum, so I thought I throw this out and see if anyone else finds it interesting and would like to comment.

73,

...hasan, N0AN

3333. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 23:06:42 UTC
From: RB <rbig@bellsouth.nospam.net>
Message-ID: <iJkUf.578$Pe.103@bignews6.bellsouth.net>
Source record: 62544

Well, I'm still getting tripped up in my terms. Not doing too well, here.

What I'm looking for is max low angle radiation comparison of the two.

3334. Current through coils - BFD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 23:14:58 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <mu7322hcinluakhvtib9t6l9a9104de8jj@4ax.com>
Source record: 62545

Well, let's start with Yuri's emphasized and cogent assertion:
"The current in a typical loading coil in the shortened antennas
drops across the coil roughly corresponding to the segment of the
radiator it replaces. "

We have:
1. A shortened antenna;
2. a loading coil;
3. a current drop across the loading coil;
4. a 1:1 relation between loading coil and
"the segment of the radiator it replaces."

What follows is a weave of contradictions, shortfalls and analysis
that whacks the funny bone with a slide rule.

On Sun, 19 Mar 2006 15:39:23 -0500, "Yuri Blanarovich"
<K3BU@optonline.net> wrote:
>The case was of electrical quarter wave vertical radiator (as loaded mobile
>antenna) and that the current is distributed, varying across the coil as I
>have experienced, W9UCW has measured and Cecil has explained.

So far, nothing has changed to the assertion from Yuri's page at the
top of this post. However, leaning on Cecil for support is....

Well, that can, and did, go anywhere - you need to bring your own
vaseline and don't expect a kiss afterwards.

****

What about point 4 above:

On Thu, 16 Mar 2006 08:56:19 GMT, Cecil Moore <mycall@arrl.net> wrote:
>> When the speculation is that the coil presents a 1:1 replacement for
>> the delay of the "missing" segment of the resonant antenna, then this
>> premise stumbles at the starting blocks.
>
>Nobody said anything about a 1:1 replacement. That was just
>somebody's strawman.

Well, now we have a name put to the strawman.

But wait! Is this quoted sneer beyond redemption? True to the
ability to believe three impossible things before brunch, we can find
contradictions within the encompass of one skull:
"number of degrees occupied by the coil in the above examples is
estimated to be ~60 degrees since the self-resonant frequency of
the coil is approximately 9 MHz. A very rough estimate of the

electrical length of the coil can be obtained using an arc-cosine
function on the standing wave current amplitudes."

Of course his vulgar usage of language that announces brilliant
logical conclusions is fraught with problems.

****

What about point 3 above:

"is it possible to have 1.29 amps of current "flowing" into the
bottom of the coil and 2.068 amps "flowing" out of the top? Of
course not!"

The "logic" of this rather emphatic assertion is what most would take
as a roundhouse to the chin of cordiality. Cecil, in his usual style
has sacrificed results to teach a lesson. Unfortunately this is part
and parcel to his rather frequent impeachment of his own references.
"A poor carpenter blames his glue-gun."

Yuri, with testimony like this, you have a trusted friend by
comparison in Tom.

****

What about point 1 above:

"78" base mast (including spring and mount) with a 38" top whip
(including 12" of alum. tubing for adjustment)"

HOWEVER, the same source also states:

"92" mast"

with absolutely no discussion of the stinger shown in the photograph.
This is a pretty poor specification given the calories expended in
emotionally developed "theories."

For the purpose of further discussion, it appears the "intent" of the
specification has two sections, each 92" tall.

****

What about point 2 above:

"using a HI-Q coil (openwound airdux, 2 1/2"d)" with 60 turns

This, too, is a pretty poor specification because I could only guess
at the turns count, and to me, the meters look like standard 3ï¿½" panel
mounts which would make this a 4" coil instead.

For the purpose of further discussion, it appears the "intent" of the
specification is a 60 turn coil of 2ï¿½" diameter.

****

Beyond one simple inclusion:

"radial field (60)"

Nothing more is offered in way of specifying the radials. This, like the examination of the coil, is fraught with issues.

For the purpose of further discussion, it appears the "intent" of the photograph supplied with boards in the grass, that this field's radius is 92"

****

A search of Yuri's page reveals no frequency specification, simply band assignments.

For the purpose of further discussion, it appears the "intent" of the article is with a resonant system built from the presumptions offered above and facts gleaned from the article, and this frequency is established as:

7.225 MHz

****

EZNEC reports that the current just beneath the load:

1.0044 @ -0.91ï¿½
and at the top of the load:
.80128 @ -1.08ï¿½

Best gain report is:

-1.37dBi @ 28ï¿½

****

There are further complications. The report at Yuri's page also mixes in discussion of currents with the coil/meters at various positions (unspecified except in general) with the notable inclusion of:

"(with hat) and reresonating"

which is a leap of faith in coming to terms with just one issue.

In other words:
1. Is the hat always present;
2. what size is the hat;
3. how is reresonating accomplished.

****

As a variation, I simply tossed the coil, replaced it with a straight wire section, and added 10 distributed loads of 69ï¿½H.

This last was a bear to wrestle into resonance by adjustment. Along the way there were reports of negative resistances until I passed

through them to find the lowest practical reactance (for me, that is
1/10th of the real resistance).

The currents across the 10 loads showed a wild variation of up to 10:1
however, the current in the segment before the first loaded segment

1.1802 -0.21ï¿½
and the current in the segment after the last loaded segment
.99314 @ 179.79ï¿½
is roughly similar to the coil model above.

Best gain response of:

-1.02dBi @ 30ï¿½

****

As a further variation, I tossed out 9 of the 10 loads, and set the
remaining load at 16.5ï¿½H

The current into/out of this load is barely remarkable against the
general decline of current readings leading up to or away from it.

Best gain response of:

-1.65dBi @ 28ï¿½

****

Net result, greatest variation in antenna gain = 0.63dBi

Average variation in antenna gain = 0.315dBi imperceptible by
definition.

73's
Richard Clark, KB7QHC

3335. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 23:27:00 UTC
From: Howard W3CQH <hgorden@adelphia.net>
Message-ID: <_K-dnYdKYdfaQLzZRVn-sw@adelphia.com>
Source record: 62546

Hi - Steve,
Yes - that is correct.
If the quad is a diamond shape for example, you could feed it either from the bottom "V" or the side "V". What is the polarity at each feed point?
Also - if the antenna is a square, you can feed it from the middle of the bottom or the middle of the side: again what is the polarity vs. the feed point?

73's

"Steve Nosko" <suteuve.nosukowicuz@moutouroula.com> wrote in message news:dvsbgj$888$2@engnntp2.cig.mot.com...
>
> Howard,
> If you mean the polarization (horizontal vs. vertical), yes.
> 73, Steve, K9DCI
>
>
> "Howard W3CQH" <hgorden@adelphia.net> wrote in message
> news:zPGdnR_G5aU_Cr3ZRVn-gA@adelphia.com...
>> Question - Is the polarity of the antenna based on the feed point?
>>
>> 73's
>>
>>
>
>

3336. Re: Current through coils - BFD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 23:48:11 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <%mlUf.41129$_S7.34746@newssvr14.news.prodigy.com>
Source record: 62547

Richard Clark wrote:
> "The current in a typical loading coil in the shortened antennas
> drops across the coil roughly corresponding to the segment of the
> radiator it replaces. "

> 4. a 1:1 relation between loading coil and
> "the segment of the radiator it replaces."

Sorry Richard, Since you deliberately distorted what Yuri said,
everything else you say is irrelevant. What is it about "roughly"
that you don't understand? "Roughly" could mean +/- 50% accuracy.

Why do you guys feel you have to distort everything in order to
win a technical argument? If you are so technically correct, just
give us the technical facts and skip the deliberate distortions.
--
73, Cecil http://www.qsl.net/w5dxp

3337. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-22 23:52:13 UTC
From: Frank <ve6cb@nospam.telus.net>
Message-ID: <NqlUf.264$B_1.176@edtnps89>
Source record: 62548

"RB" <rbig@bellsouth.nospam.net> wrote in message
news:iJkUf.578$Pe.103@bignews6.bellsouth.net...
> Well, I'm still getting tripped up in my terms. Not doing too well, here.
>
> What I'm looking for is max low angle radiation comparison of the two.

The vertical, should have a far better low angle performance, although
four radials is probably inadequate to minimize ground absorbtion.

The inclusion of a loading coil does little or nothing to effect the
radiation
efficiency.

Frank

3338. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 00:56:40 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <q8ydnZEkp9dxbbzZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 62549

Cecil Moore wrote:
> John Popelish wrote:
>
>> Cecil Moore wrote:

>> I agree, unless you use phase measurement to hunt for the location of
>> the current nodes that have moved as a result of adding the coil.
>> Finding a phase reversal at opposite ends of the coil, for instance,
>> implies that an odd number of nodes reside in the coil.
>
>
> John, I didn't say the amplitude couldn't be used to determine
> phase. The current nodes are associated wiht amplitudes, not phase.

If you can measure phase, you can see that it is opposite on opposite
sides of a node. There is a 180 degree phase shift each time the
measurement passes over a node. Do you disagree?

>> A phasor rotates at the reference frequency, and with a phase angle
>> that represents the angular difference between the value in question
>> and the reference cycle. Pick a point on the conductor, and if it
>> carries either a standing or traveling wave (or any combination of
>> traveling waves at the reference frequency), the current at that point
>> is describable as a phasor (having a specific magnitude, and a
>> specific phase with respect to the reference cycle).
>
>
> Yes, but the standing wave phasor doesn't change phase with position.
> The traveling wave phasors change phase with position. That's a big
> difference.

That's exactly the difference. But if you measure a single point, you
can't tell whether you are measuring a point on a traveling wave or a
standing wave. Agree?

>> No. Currents do not travel. Current is the movement of charge past a
>> point.
>
>
> So current doesn't flow and all the references to "current flow" are
> wrong?

Afraid so. The concept of current already includes the concept of
flow. Current is charge flow. Current flow is charge flow flow??

> If so, your task is a lot bigger than mine. May I suggest a
> new thread titled, "Current Doesn't Flow".

I wonder how long that thread would "flow".

3339. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 00:59:20 UTC
From: Jim - NN7K <nn7kexk7zfg@NOSPAMsbcglobal.net>
Message-ID: <IpmUf.46509$2O6.3785@newssvr12.news.prodigy.com>
Source record: 62550

Must comment- that the answer is "MAYBE"! It depends on what is
UNDER that roof! If you have metal flashing (near vents, furnace
pipeing), or insulation with a "VAPOR BARRIER" usually, aluminium
foil backed, it may affect your ability to xmit a signal , and in
the case of the latter, might make a great "FARIDAY SHIELD" (signal
proof room)! And this would apply to comercial antennas as well!
Tho, the wood in a roof, and the roofing material should be
generally passive to even UHF, the other materials might be
a problem. Dont give up hope, as have friend witha antenna
(quad), on 6 meters, and 2 meters, in an attic dormer, if it had
been insulated correctly, would have been relatively RF Proof!
Might want to examine it before betting too complex! Jim -NN7K

>>>
>>>>"jimbo" <jimbo62@spamex.com> wrote in message
>>>>news:RZadnXHuHeVRmb3Z4p2dnA@comcast.com...
>>>>
>>>>
>>>>>jimbo wrote:
>>>>>
>>>>>
>>>>>Thanks for all of the advice. I have one more question. Can I tune a
>>>>>J-Pole antenna in my shop and then move it to the attic and expect the
>>>>>same performance? In other words, is an antenna an antenna or is an
>>>>>antenna and it's installation an antenna?
>>>>>
>>>>>It would seem to me that if the antenna is tuned and works in my shop
>>>>>it should work in the attic. Otherwise, how do "store bought" antennas
>>>>>work?
>>>>>
>>>>>Thanks, jimbo
>>>>

3340. Re: Current through coils - BFD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:04:00 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <nes3221ite2i2r82fmu0i6ussjbdn197lr@4ax.com>
Source record: 62553

On Wed, 22 Mar 2006 23:48:11 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>Since you deliberately distorted what Yuri said,

The Hammond Organ's notes swell to "As the World Turns"

>everything else you say is irrelevant. What is it about "roughly"
>that you don't understand? "Roughly" could mean +/- 50% accuracy.

You don't really know, do you? ;-)

As I see both my name and Roy's on his page as positive role models,
and that this post you didn't read bears on specifics instead of with
your fantasies, I will let Yuri speak for himself about the merit of
my work.

3341. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:06:35 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <urudnfumjsvdbrzZnZ2dnUVZ_t6dnZ2d@adelphia.com>
Source record: 62551

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> I think I agree with just about every conclusion you are making about
>> treating coils as slow wave transmission lines. . .
>
>
> A coil itself isn't a slow wave transmission line.

Not at all? It seems to me that any real, physical inductor must have some lumped properties and some transmission line properties, and it is the balance of these that must be considered in any particular case to decide which analysis is the more accurate way to deal with it in a circuit. Solenoidal air core inductors have a lot of transmission line properties if the frequency is high enough. If this were not so, they would look exactly like fixed capacitors above self resonance, instead of having multiple impedance peaks and valleys.

> In conjunction with
> shunt C, it can be analyzed as a transmission line, but only in
> conjunction with shunt C.

But any real, physical inductor has shunt capacitance to its surroundings. So if you neglect this without considering whether or not this is reasonable, you are going to be blindsided by its effects, eventually.

> Remove the shunt C and it ceases looking like
> a transmission line.

How do I remove the shunt C of an inductor? With an active guarding scheme?

> The earlier example of the modification to Cecil's
> EZNEC model illustrated this -- when the ground (the other side of the
> shunt capacitor) was removed, the current drop across the coil disappeared.

So whether or not this coil is acting as a slow wave transmission line in addition to being inductive depends on the surrounding fields and connections? I have no trouble with that.

> As far as considering a coil itself as a "slow wave structure", Ramo and
> Whinnery treat this subject. It's in the chapter on waveguides, and they
> explain how a helix can operate as a slow wave waveguide structure. To
> operate in this fashion requires that TM and TE modes be supported
> inside the structure which in turn requires a coil diameter which is a

> large part of a wavelength. Axial mode helix antennas, for example,
> operate in this mode. Coils of the dimensions of loading coils in mobile
> antennas are orders of magnitude too small to support the TM and TE
> modes required for slow wave propagation.

I'll have to take your word for this limitation. But it seems to me
that the length of the coil in relation to the wavelength and even the
length of the conductor the coils is made of are important, also.

3342. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:09:48 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <JeSdneqxSJGdabzZnZ2dnUVZ_v-dnZ2d@adelphia.com>
Source record: 62552

Cecil Moore wrote:
> John Popelish wrote:
>
>> It may be you or I may have an untied shoe.
>
>
> In any case, Jim, oops, I mean John, here's the IEEE Dictionary's
> definition of current.
>
> "current - The flow of electrons within a wire or a circuit:
> measured in ampheres." And no, there is no definition for
> "current flow" in the IEEE Dictionary.
>
> "Current flow" and "power flow" are commonly used terms to
> signify "charge movement" and "energy movement". Objecting
> to the use of the words "current flow" is really picking at
> infinitessimal nits.

Current flow is an informal expression that is used by people who only
conversationally acquainted with electricity. That, of course,
doesn't explain why I occasionally slip up and say it.

I am just trying to eliminate as many pick points from your position
as possible, to reduce the side trips into strawman wars.

3343. Re: Multiband Dipole Angles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:12:42 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <hat322l9afbtrelrutccrs16ola29gv9vv@4ax.com>
Source record: 62554

On Wed, 22 Mar 2006 22:17:19 GMT, "Troy Majors"
<leica3f@earthlink.net> wrote:

>What effect will the following have:
>
>both legs of the multiband dipole 60 to 65 feet up in the air cannot be in a
>straight line, but one leg must vary from a true north-south diple to the
>northeast at about a 35-40 degree angle from the other leg. Also, both legs
>slant downward in a slight inverted-V configuration, probably about 20-25
>degrees. The feed line will come straight down at a 90 degree angle from
>the dipole legs, but will then split the difference in its horizontal move
>along the ground to the house. How much do I lose from all this compared to
>a dipole with both legs straight in line, and the feedline 90 degrees from
>the dipole both vertically and horizontally?
>
>All this is driven by the size of the lot, the placement of the trees in the
>back and front yards, the direction and density of the various limbs off the
>trees, and the level of my skill with a slingshot. I have the pilot ropes
>in place but have not raised the antenna yet. Any advice before I commit to
>this configuration?

Don't shoot your lead weight through your neighbor's window. Oh, wait
a minute... you already have the ropes in place. What are you waiting
for?

3344. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:25:28 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143077128.011283.306270@v46g2000cwv.googlegroups.com>
Source record: 62555

(Yawn) So, I have this system where there's a wave in each direction and they are identical amplitudes so that there is zero loss to radiation or thermal dissipation. And in this system there is a series coil through which the waves pass, and the current at each end of the coil is different amplitude. That means that the coulombs/second passing a point at one end of the coil is different than the coulombs/second passing the other end of the coil. The currents can be in phase or counter-phase. In fact, if the phases of the currents at the two ends of the coil were not the same, then even equal-amplitude currents at each end would imply that, except at certain instants of time, there are differing coulombs/second passing the points at either end of the coil.

What happens to that imbalance in charge? Where does it go? What do we call something that behaves that way? What's so freakin' special about that?

Cheers,
Tom

3345. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:28:58 UTC
From: w8ji@akorn.net
Message-ID: <1143077338.694612.238920@z34g2000cwc.googlegroups.com>
Source record: 62556

Yuri Blanarovich wrote:

> The conclusion was:
> "There IS a drop, difference in RF current across the antenna loading coil."
> The significance (to me anyway): Efficiency of the radiator, antenna is
> proportional to the area under the (cosine) curve of the current
> distribution across the radiator.

That is where we disagree. While it has been years, as I recall you claimed the electrical degrees the inductor replaced caused the slope across the inductor.

The point I (and others) tried to make was that in a small inductor current was essentially equal at both ends of the coil, and any change had to be caused by capacitance from the coil to the outside world that was large compared to the termination impedance at the top of the inductor.

It really is a shame you flew off the handle so fast and we didn't talk through the problem. That's why misunderstandings start and drag on for years.

This has become a "let's get him" thing instead of "let's figure out how it works".

> So in the typical loaded (mobile or shortened) vertical we are trying to
> maximize the efficiency and it is important to know what is the current
> distribution across the radiator. If the coil has a drop in order of 40 -
> 60% as it appears to be, than that is significant to me to take it into the
> account. Knowing how to apply this effect will allow me to optimize,
> maximize the antenna performance.

If you look at the measurements at:

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

you'll see for a given antenna structure, I can change the current distrution all around. The current in a small loading coil of reasonable form factor is essentially uniform at both ends of the inductor.

This is because the inductor does not replace a certain "electrical degrees" and have a cosine current drop related to those degrees. Any drop in current is caused by displacement current from the inductor to the outside world.

By the way, this is DIFFERENT than the self-resonance capacitance Cecil refers to. The capacitance causing a self-resonance is actually a

mixture of capacitance to the outside world (that DOES change
distribution) and capacitance from turn to turn (that does NOT change
slope of current except by how it affects effective inductance).

> 3. Then Tom, W8JI and his followers, with some "backing" from literature
> (plenty are wrong), some experiments, modeling, came to "prove" that it
> can't be so. His conclusion: "The current in the antenna loading coil is the
> same at both ends". Then the "fight" and controversy started.
> It appears to me that JI camp is coming from the theoretical end of it,
> applying laws of physics and theories that do not apply to the case in
> question.

First, it is not "my camp". I know people like to make things like this
personal issues, but they really are not. How things work are how
things work. I like to learn how things work just as much as anyone
else. The problem is when people start getting personal and saying
things they would never dare say to another person's face, I get
uncooperative.
Most people behave that way.

Putting personal issues aside, anything can be resolved.

> 5. Not so fast. JI camp vehemently defended their "equal current" case,
> using examples, modeling, tailored to support their claims, for some reason
> ignoring the reality, measurements, experiments done to set the coil in the
> spot where current can be, and is the same (no argument with that).

I can make current virtually equal at virtually any spot, and make it
very unequal at virtually any spot, just by changing the quality and
physical size of the loading inductor. I'll bet money on this,
provided we use real instruments.

The only time current will be substantially unequal will be when the
inductor has a large amount of capacitance to the outside world (acting
like a distributed network of displacement C's and series L's with
poor coupling) compared to the termination impedance at the inductor's
top.

I can take an antenna of specific height and vary current taper in the
inductor quite a bit just by changing the style of loading coil.

It is the idea that the loading coil drops a certain current because of
"electrical degrees" that is so untrue.

> 10. According W8JI camp, looking at the quarter wave loaded whip, the
> current goes up the radiator according to cosine curve, then is the same
> across the coil, then tapers to zero at the tip in the triangular shape
> (should be the rest of the cosine curve, but close enough approximation). We
> are talking about typical loaded resonant quarter wave ant, (not any coil in
> any circuit).

Again, this isn't my camp. Repeatedly trying to make this a personal
issue really just stops the scientific process.

The current distribution described above is indeed how an antenna works. This of course assumes the inductor is compact and has minimal distributed capaciatnce to the outside world compared to the termination impedance presented by the whip.

It can be proven.

73 Tom

3346. V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:40:02 UTC
From: w8ji@akorn.net
Message-ID: <1143078002.731378.198740@g10g2000cwb.googlegroups.com>
Source record: 62558

I've been modeling V beams off and on for a few years now, and never can seem to get one that has useful gain.

Has anyone seen a successful model anyplace of a two or three wave V with good gain??

73 Tom

3347. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 01:41:28 UTC
From: "Dan, danl, danny boy, Redbeard, actually Greybeard now" <danl4x@charter.net>
Message-ID: <2ru322p4obp7gfbb47sdap3vhh4hm0fhru@4ax.com>
Source record: 62557

On Wed, 22 Mar 2006 08:22:27 -0800, Richard Clark <kb7qhc@comcast.net>
sent into the ether:

>>>On Wed, 22 Mar 2006 10:36:48 +0100, Deni <telegrafiste@tiscali.fr>
>>>wrote:
>>>
>>>>looking for any tips advice etc.
>>>
>>>Hi Deni,
>>>
>>>Make sure you are not violating any civil airspace rules. One
>>>consideration is how do you insure your balloon will not escape?
>>>Another consideration is to make sure the balloon is some distance
>>>away from the end of the wire. Tying the wire to the balloon invites
>>>the high potential at the end of that wire to explode *POP* the
>>>balloon.
>>>
>>>73's
>>>Richard Clark, KB7QHC

Power Pro fishing line comes to mind as a good tether. 50# is very
thin(same as 12# mono), light(150yrds maybe 2/4 ounces with the
spool?) and amazingly strong. Put it on an old fishing reel and it's
ready to reuse any time you want.

I've learned that I don't suffer from insanity, I enjoy it! (That is what my X-wife told
me)
danl4x@charter.net
Remove the x for e-mail reply
www.outdoorfrontiers.com
www.SecretWeaponLures.com
A proud charter member of "PETAF", People for Eating Tasty Animals and Fish!!!

3348. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 02:00:40 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <t4SdnXPwJJ5wYrzZRVn-ig@adelphia.com>
Source record: 62559

K7ITM wrote:
> (Yawn) So, I have this system where there's a wave in each direction
> and they are identical amplitudes so that there is zero loss to
> radiation or thermal dissipation. And in this system there is a series
> coil through which the waves pass, and the current at each end of the
> coil is different amplitude. That means that the coulombs/second
> passing a point at one end of the coil is different than the
> coulombs/second passing the other end of the coil. The currents can be
> in phase or counter-phase. In fact, if the phases of the currents at
> the two ends of the coil were not the same, then even equal-amplitude
> currents at each end would imply that, except at certain instants of
> time, there are differing coulombs/second passing the points at either
> end of the coil.
>
> What happens to that imbalance in charge? Where does it go? What do
> we call something that behaves that way? What's so freakin' special
> about that?

The charge briefly piling up and then being sucked out of such an
inductor is the same place charge piles up and is sucked out of parts
of a transmission lines with standing waves on them. That is the
shunt capacitance to the rest of the universe from each part of the
coil or transmission line that momentarily stores this charge.

So, I guess the word you are trying to get me to say is "capacitance".
Nobody says it is "freakin' special", though. Its common as dirt.

What do I win?

3349. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 02:26:59 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <THnUf.58555$H71.19314@newssvr13.news.prodigy.com>
Source record: 62560

John Popelish wrote:
> If you can measure phase, you can see that it is opposite on opposite
> sides of a node. There is a 180 degree phase shift each time the
> measurement passes over a node. Do you disagree?

Yes, but you can tell that from the amplitude being zero.

> That's exactly the difference. But if you measure a single point, you
> can't tell whether you are measuring a point on a traveling wave or a
> standing wave. Agree?

I agree but who would be stupid enough to measure just a single
point? One could wear a blindfold and use no hands and have an
even greater challenge.
--
73, Cecil http://www.qsl.net/w5dxp

3350. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 02:42:49 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <JWnUf.58562$H71.52576@newssvr13.news.prodigy.com>
Source record: 62561

K7ITM wrote:

> (Yawn) So, I have this system where there's a wave in each direction
> and they are identical amplitudes so that there is zero loss to
> radiation or thermal dissipation. And in this system there is a series
> coil through which the waves pass, and the current at each end of the
> coil is different amplitude. That means that the coulombs/second
> passing a point at one end of the coil is different than the
> coulombs/second passing the other end of the coil.

Sorry, you are wrong about that. Here's why. For simplicity,
let's assume the coil is lossless, 45 degrees long, and the
forward and reflected current magnitudes are both equal to
one amp. These assumptions are for purposes of illustration
only.

One amp of forward current is flowing into the coil and one
amp of forward current is flowing out of the coil. Charge is
balanced.

One amp of reflected current is flowing into the coil and one
amp of reflected current is flowing out of the coil. Charge is
balanced.

Note there is ZERO charge imbalance in the coil. The forward
and reflected currents are all there are and they are balanced.

The forward current at the bottom of the coil is 1 amp at zero
degrees. The reflected current at the bottom of the coil is 1
amp at zero degrees. Adding them together yields a standing
wave current of 2 amps at zero degrees. Do you know how to
do phasor math?

The forward current at the top of the coil is 1 amp at -45
degrees. The reflected current at the top of the coil is
1 amp at +45 degrees. Adding them together yields a standing
wave current of 1.414 amps at zero degrees. Do you know how
to do phasor math?

The standing wave current at the bottom of the coil is 2 amps.
The standing wave current at the top of the coil is 1.414 amps.
THERE IS *NO CURRENT IMBALANCE* BECAUSE THAT STANDING WAVE CURRENT
IS NOT REALLY FLOWING. IT IS JUST STANDING THERE. That's the
entire point.

> What happens to that imbalance in charge?

Imbalance in charge is a myth, an old wives' tale. There is NO
imbalance in charge. SEE ABOVE!
--
73, Cecil http://www.qsl.net/w5dxp

3351. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 02:52:42 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <_3oUf.58565$H71.18677@newssvr13.news.prodigy.com>
Source record: 62562

w8ji@akorn.net wrote:
> The point I (and others) tried to make was that in a small inductor
> current was essentially equal at both ends of the coil, ...

A 75m bugcatcher coil is NOT a small inductor. It is a slow-
wave structure with a velocity factor of about 0.017, both
measured and calculated. That gives my bugcatcher coil an
electrical length at 4 MHz of about ~60 degrees.

> This is because the inductor does not replace a certain "electrical
> degrees" and have a cosine current drop related to those degrees.

Sorry, Tom, Dr. Corum has proven you wrong on that score. A 1/2WL
thin-wire dipole has a perfect cosine curve. Other structures
deviate away from that perfect cosine curve. The coil certainly
deviates away from that perfect cosine curve. But if you look
at the current waveforms at:

http://www.k6mhe.com/n7ws/Loaded%20antennas.htm

figure 3, you can still see the outline of that cosine curve.

> I can take an antenna of specific height and vary current taper in the
> inductor quite a bit just by changing the style of loading coil.

You can take the same loading coil and move it around in a standing
wave environment and obtain any current distribution including current
flowing into both ends of the coil at once.

> It is the idea that the loading coil drops a certain current because of
> "electrical degrees" that is so untrue.

Sorry, Tom, that's just an old wives' tale of yours. Please respond
to my new thread, "Silence of the Gurus".
--
73, Cecil http://www.qsl.net/w5dxp

3352. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 02:58:15 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <b9oUf.58567$H71.28308@newssvr13.news.prodigy.com>
Source record: 62563

John Popelish wrote:

> K7ITM wrote:
>> What happens to that imbalance in charge? Where does it go? What do
>> we call something that behaves that way? What's so freakin' special
>> about that?
>
> The charge briefly piling up and then being sucked out of such an
> inductor is the same place charge piles up and is sucked out of parts of
> a transmission lines with standing waves on them.

Seems you got sucked in by a myth, John. The forward current is equal
at both ends of the coil. The reflected current is equal at both ends
of the coil. That takes care of any question of charge imbalance. There
simply isn't any.

Assume the coil is 90 degrees long and that the forward current is one
amp and the reflected current is one amp.

At one end of the coil, the forward and reflected currents are 180
degrees out of phase. The standing wave current is zero.

At the other end of the coil, the forward and reflected currents
are in phase. The standing wave current is 2 amps.

Now do you see why standing wave current is considered not to be flowing?
--
73, Cecil http://www.qsl.net/w5dxp

3353. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:01:55 UTC
From: artie <artie.m@gNOSPAMmail.com>
Message-ID: <220320061901558586%artie.m@gNOSPAMmail.com>
Source record: 62564

In article <dvr5reddg1@news.tiscali.fr>, Deni
<telegrafiste@tiscali.fr> wrote:

> I'm going to have a go with a 3/8 wavelength (for 160M) wire, lifted by
> a 2M helium balloon during the summer months. The first 40' of wire will
> be supported vertically by a fibre glass mast then the remaining 156' by
> the balloon. I have a ground plane in place already and will use a
> manual tuner at the base to 50 ohm coax, I expect to use this on other
> bands besides Top band. What is a good type of wire to use, obviously
> flexible, not too heavy but good copper content, or would electric fence
> cord (with woven in stainless steel strands) be too lossy? looking for
> any tips advice etc.
>
> 73, Deni
> F5VJC

Been there, done that, lived to tell the tale... Ended up putting the
wire spool in a metal can and feeding the entire can, so the wire on
the spool wasn't some weird inductor.

As other OPs point out, be aware of your local aviation authority
rules. In the U.S., flying things above a few hundred feet can garner
the wrong kind of attention.

In more rural areas, you may garner attention from people with rifles.

Discharge off the end of the wire tends to disagree with thin balloon
material; a few meter stringer of nonconductive line is a *good* idea
(or have a backup balloon and a backup supply of gas).

Helium is for pansies. Use hydrogen; it won't leak as fast (really --
those heliums are solitary little sneaky bastards and will get out of
anything, while hydrogens are diatomic and tend to stick around
longer).

Above all, have fun!

--
Namaste--

3354. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:19:08 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12244tdjaher025@corp.supernews.com>
Source record: 62565

John Popelish wrote:
> Roy Lewallen wrote:
>> John Popelish wrote:
>>
>>> . . .
>>> I think I agree with just about every conclusion you are making about
>>> treating coils as slow wave transmission lines. . .
>>
>>
>> A coil itself isn't a slow wave transmission line.
>
> Not at all? It seems to me that any real, physical inductor must have
> some lumped properties and some transmission line properties, and it is
> the balance of these that must be considered in any particular case to
> decide which analysis is the more accurate way to deal with it in a
> circuit. Solenoidal air core inductors have a lot of transmission line
> properties if the frequency is high enough. If this were not so, they
> would look exactly like fixed capacitors above self resonance, instead
> of having multiple impedance peaks and valleys.
>
>> In conjunction with shunt C, it can be analyzed as a transmission
>> line, but only in conjunction with shunt C.
>
> But any real, physical inductor has shunt capacitance to its
> surroundings. So if you neglect this without considering whether or not
> this is reasonable, you are going to be blindsided by its effects,
> eventually.

I don't disagree with anything you've said. The point I was trying to make was that the resemblance of a coil to a transmission line depends not only on the coil but also its capacitance to other objects -- and not to its relationship to traveling current waves. One thing I've seen done on this thread is to use the C across the inductor in transmission line formulas, appearing to give the coil a transmission line property all by itself and without any external C. This is incorrect.

>
>> Remove the shunt C and it ceases looking like a transmission line.
>
> How do I remove the shunt C of an inductor? With an active guarding
> scheme?

Actually, you can reduce it to a negligible value by a number of means. One I've done is to wind it as a physically small toroid. In the example discussed in the next paragraph, removing ground from the model reduces

the external C to a small enough value that the current at the coil ends become nearly equal. That of course isn't an option in a real mobile coil environment, but it illustrates that the current drop from one end to the other, which in some ways mimics a transmission line, is due to external C rather than reaction with traveling waves as Cecil claims. In my modification to Cecil's EZNEC file I showed how the coil behaves the same with no antenna at all, just a lumped load impedance. As long as the load impedance and external C stay the same, the coil behavior stays the same. This isn't, however, to discount the possibility of the coil interacting with the antenna's field. It just wasn't significant in that case.

>> The earlier example of the modification to Cecil's EZNEC model
>> illustrated this -- when the ground (the other side of the shunt
>> capacitor) was removed, the current drop across the coil disappeared.
>
> So whether or not this coil is acting as a slow wave transmission line
> in addition to being inductive depends on the surrounding fields and
> connections? I have no trouble with that.

Well, not a "slow wave" transmission line. We shouldn't confuse an ordinary lumped LC transmission line approximation with a true slow wave structure such as a helical waveguide (next item). The propagation velocity of the equivalent transmission line is omega/sqrt(LC), so the speed depends equally on the series L and the shunt C.

And let's talk for a minute about the coil "acting like" a transmission line. A transmission line is of course a distributed circuit. But you can make a single pi or tee section with lumped series L and shunt C which has all the characteristics of a transmission line at one frequency(*), including time delay, phase shift, characteristic impedance, impedance transformation, and everything else. If put into a black box, you wouldn't be able to tell the difference among the pi, tee, or transmission line -- at one frequency. You could even sample the voltage and current with a Bird wattmeter and conclude that there are traveling voltage and current waves in both cases, and calculate the values of the standing waves on either "transmission line". And this is with a pure inductance and capacitance, smaller than the tiniest components you can really make. With a single section, you can mimic any transmission line Z0 and any length from 0 to a half wavelength. (The limiting cases, however, require some components to be zero or infinite.) So you can say if you wish that the inductor in this network "acts like" a transmission line -- or you can equally correctly say that the capacitor does, because it's actually the combination which mimics a transmission line. But only over a narrow range of frequencies, beyond which it begins deviating more and more from true transmission line behavior. To mimic longer lines or mimic lines over a wider frequency range requires more sections.

So what can we conclude about inductors from this similar behavior? Certainly not that there's anything special about inductors interacting

with traveling waves or that inductors comprise some kind of "slow wave structure". The duality comes simply from the fundamental equations which describe the nature of transmission lines, inductances, and capacitances.

Because the LC section's properties are identical to a transmission line's at one frequency, we have our choice in analyzing the circuit. We can pretend it's a transmission line, or we can view it as a lumped LC network. If we go back to the fundamental equations of each circuit element, we'll find that the equations end up exactly the same in either case. And the results from analyzing using each method are identical -- if not, we've made an error.

The coil in the EZNEC model on Cecil's web page acts just like we'd expect an inductor to act. With ground present constituting a C, the circuit acts like an L network made of lumped L and C which behaves similarly to a transmission line. With ground, hence external C, absent, it acts like a lumped L. (There are actually some minor differences, due to imperfect coupling between turns and to coupling to the finite sized external circuit.) The combination of L and C "act like" a transmission line, just like any lumped L and C. And it doesn't care whether the load is a whip or just lumped components.

(*) It actually acts like a transmission line at many frequencies, but a different length and Z0 of line at each frequency. To mimic a single line over a wide frequency range requires additional sections.

>> As far as considering a coil itself as a "slow wave structure", Ramo
>> and Whinnery treat this subject. It's in the chapter on waveguides,
>> and they explain how a helix can operate as a slow wave waveguide
>> structure. To operate in this fashion requires that TM and TE modes be
>> supported inside the structure which in turn requires a coil diameter
>> which is a large part of a wavelength. Axial mode helix antennas, for
>> example, operate in this mode. Coils of the dimensions of loading
>> coils in mobile antennas are orders of magnitude too small to support
>> the TM and TE modes required for slow wave propagation.
>
> I'll have to take your word for this limitation. But it seems to me
> that the length of the coil in relation to the wavelength and even the
> length of the conductor the coils is made of are important, also.

Important for what? No matter how long the coil or how many turns of the wire, a small (in terms of wavelength) inductor won't act like a slow wave structure or an axial mode helical antenna. This is for the same reason that a two inch diameter pipe won't perform as a waveguide at 80 meters -- there's not enough room inside to fit the field distribution required for that mode of signal propagation. There will of course be some point at which it'll no longer act as a lumped inductor but would have to be modeled as a transmission line. But this is when it becomes a significant fraction of a wavelength long. If the turns are very loosely coupled to each other, the wire length becomes more of a determining factor. As I mentioned in earlier postings, there's a continuum between

a straight wire and that same wire wound into an inductor. As the straight wire is wound more and more tightly, the behavior transitions from that of a wire to that of an inductance. There's no abrupt point where a sudden change occurs.

Roy Lewallen, W7EL

3355. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:26:16 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <szoUf.58574$H71.29842@newssvr13.news.prodigy.com>
Source record: 62566

Roy Lewallen wrote:
> Well, not a "slow wave" transmission line. We shouldn't confuse an
> ordinary lumped LC transmission line approximation with a true slow wave
> structure such as a helical waveguide (next item). The propagation
> velocity of the equivalent transmission line is omega/sqrt(LC), so the
> speed depends equally on the series L and the shunt C.

Dr. Corum gives a formula for calculating the velocity factor of coils
which meet a certain criteria. My 75m bugcatcher coil meets that
criteria. It's velocity factor calculates out to be 0.0175. It's
measured velocity factor is 0.015. That sounds like a "slow wave"
device to me.

> The coil in the EZNEC model on Cecil's web page acts just like we'd
> expect an inductor to act. With ground present constituting a C, the
> circuit acts like an L network made of lumped L and C which behaves
> similarly to a transmission line. With ground, hence external C, absent,
> it acts like a lumped L.

The subject is 75m bugcatcher loading coils mounted on GMC pickups.
How the heck does the ground get removed?

> Important for what? No matter how long the coil or how many turns of the
> wire, a small (in terms of wavelength) inductor won't act like a slow
> wave structure ...

A 75m bugcatcher coil is not small.
--
73, Cecil http://www.qsl.net/w5dxp

3356. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:33:17 UTC
From: Sum Ting Wong <sumtingwong@privacy.net>
Message-ID: <065422lhn5bjoanha3jjnjbleo6jpfbh2v@4ax.com>
Source record: 62567

On Wed, 22 Mar 2006 10:36:48 +0100, Deni <telegrafiste@tiscali.fr>
wrote:

>I'm going to have a go with a 3/8 wavelength (for 160M) wire, lifted by
>a 2M helium balloon during the summer months.

FWIW, I was down at Quartzsite, AZ for the "Quartzfest" campout in
January and saw someone with a very nice helium balloon that looked
like it would be ideal for supporting antennas. It wasn't being flown
by one of the hams but by one of the off-roaders camped nearby so they
could find their way back to their campsite. I asked where they got
their balloon and they gave me this url:

http://www.arizonaballoon.com/generic3.html

The "ball" balloons look ideal for supporting a 1/4 /\ vertical for
160M.

73/ S.T.W.

3357. ground impedance quantify

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:35:23 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143084923.112014.179860@t31g2000cwb.googlegroups.com>
Source record: 62568

ideal ground impedance is zero.however at rf/microwave, copper traces have parasitic caps,res, and inductance...we have a formula of inductance of a pcb trace which is independent on frequency(dependent on Length and width of trace only)...

with this, is there a way to quantify the impedance of a ground plane?
thanks !

3358. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:37:31 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12245vsp3rgb00c@corp.supernews.com>
Source record: 62569

John Popelish wrote:
> . . .
> That's exactly the difference. But if you measure a single point, you
> can't tell whether you are measuring a point on a traveling wave or a
> standing wave. Agree?
>

There seems to be some confusion about just what a standing wave is.

A standing wave is the result of, and the sum of, two or more traveling waves. There aren't points which are "on" one or the other. If you can separately measure or calculate the values of the traveling current waves at any point, you can add them to get the total current (what Cecil calls "standing wave current") at that point. If you add the traveling current waves at each point along the line and plot the amplitude of the sum (that is, of the total current) versus position, you see a periodic relationship between the amplitude and position. It's this relationship which is called a "standing wave". It's so called because its position relative to the line stays fixed. It's simply a graph of the total current (the sum of the traveling waves) vs. position.

Roy Lewallen, W7EL

3359. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:41:01 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <hNoUf.58577$H71.50233@newssvr13.news.prodigy.com>
Source record: 62570

Roy Lewallen wrote:
> The coil in the EZNEC model on Cecil's web page acts just like we'd
> expect an inductor to act. With ground present constituting a C, the
> circuit acts like an L network made of lumped L and C which behaves
> similarly to a transmission line. With ground, hence external C, absent,
> it acts like a lumped L. (There are actually some minor differences, due
> to imperfect coupling between turns and to coupling to the finite sized
> external circuit.) The combination of L and C "act like" a transmission
> line, just like any lumped L and C. And it doesn't care whether the load
> is a whip or just lumped components.

But the point is that the delay through the coil is somewhere
between 40 degrees and 60 degrees. When you tried to measure
the phase shift through a coil, you used standing wave current
phase to make the measurement. Standing wave current phase is
unchanging so you made a measurement blunder.
--
73, Cecil http://www.qsl.net/w5dxp

3360. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:48:18 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <6UoUf.58578$H71.20962@newssvr13.news.prodigy.com>
Source record: 62571

Roy Lewallen wrote:
> A standing wave is the result of, and the sum of, two or more traveling
> waves. There aren't points which are "on" one or the other. If you can
> separately measure or calculate the values of the traveling current
> waves at any point, you can add them to get the total current (what
> Cecil calls "standing wave current") at that point. If you add the
> traveling current waves at each point along the line and plot the
> amplitude of the sum (that is, of the total current) versus position,
> you see a periodic relationship between the amplitude and position. It's
> this relationship which is called a "standing wave". It's so called
> because its position relative to the line stays fixed. It's simply a
> graph of the total current (the sum of the traveling waves) vs. position.

And there's no such thing as current imbalance based on standing
wave currents being different at each end of a loading coil.
"Current imbalance" is a concept that doesn't apply to standing
waves. "Phase rotation with position" is a concept that doesn't
apply to standing waves. Standing wave current is NOT ordinary
current. It is the superposition of two ordinary currents.
--
73, Cecil http://www.qsl.net/w5dxp

3361. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 03:50:14 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143085814.026337.322440@i40g2000cwc.googlegroups.com>
Source record: 62572

thanks.
my applications is this:
1.im designing an antenna switching array of four quarter wavelengths equally spaced apart in a circular manner @2.4 ISM band.
2.this is a doppler antenna system in which i switch(discrete lines from a microcontroller)) the antennas using rf pin diode(above 3GHz) around 30-50khz repetition rate .
3.from the discrete lines, i put a decoupling cap of 100nF to filter out high frequency generated by my micro(5th harmonics) and series it with an RF choke(choke the 2.4ghz signal coming from the antenna) direct to my switch(series) then a DC blck cap then the antenna. i have 4 arrays of these.also, i plan to have a DC feed after my antenna but could hardly find high-valued inductors with sfr about 2.4GHz hence i omitted it.

questions:
1.i doubt my isolation level for this setup.also,my reverse bias is only logic zero '0V'.would you recommend another setup with higher isolation at the same time cost-wise?
2.any recommendations on my possible pcb board layout with regards to ground/power planes?

thanks!

3362. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:06:41 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <12247mhls4oqmca@corp.supernews.com>
Source record: 62573

Correction:

Roy Lewallen wrote:

(Last paragraph)

> Important for what? No matter how long the coil or how many turns of the
> wire, a small (in terms of wavelength) inductor won't act like a slow
> wave structure or an axial mode helical antenna. . .

The word "diameter" should be added:

> Important for what? No matter how long the coil or how many turns of
> the wire, a small *diameter* (in terms of wavelength) inductor won't
> act like a slow wave structure or an axial mode helical antenna. . .

Roy Lewallen, W7EL

3363. OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:28:25 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <12248vhflrht441@corp.supernews.com>
Source record: 62575

Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff whill i HAVE A VERY really very question on the board. You know, the one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will my thoughts work or whut!

giddy-yupbapa mau-mau
)cant remember where that came from, just enterred my head and has been plaqueing me for for days.....

Butch KF5DE

3364. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:31:59 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <T5GdnQKEib75vr_ZnZ2dnUVZ_tudnZ2d@adelphia.com>
Source record: 62574

Cecil Moore wrote:
> John Popelish wrote:
>
>> K7ITM wrote:
>>
>>> What happens to that imbalance in charge? Where does it go? What do
>>> we call something that behaves that way? What's so freakin' special
>>> about that?
>>
>>
>> The charge briefly piling up and then being sucked out of such an
>> inductor is the same place charge piles up and is sucked out of parts
>> of a transmission lines with standing waves on them.
>
>
> Seems you got sucked in by a myth, John. The forward current is equal
> at both ends of the coil.

Now, cut that out! Standing waves have sinusoidal current swings that
vary in amplitude with location. Location includes the two ends of a
coil.

> The reflected current is equal at both ends
> of the coil.

Smile when you say that.

> That takes care of any question of charge imbalance. There
> simply isn't any.

Oh poo. At current nodes charge piles up and spreads out, on
alternating half cycles. For one half cycle, the pile is positive,
and for the next it is negative. This is a basic transmission line
concept. If transmission lines had no shunt capacitance, there would
be no place to put this charge. But there is, so it is no problem.
Whether the transmission line is coax, twin line or a slow wave helix
makes little difference. The process is similar. Isn't this what you
have been arguing?

> Assume the coil is 90 degrees long and that the forward current is one
> amp and the reflected current is one amp.
>
> At one end of the coil, the forward and reflected currents are 180
> degrees out of phase. The standing wave current is zero.
>
> At the other end of the coil, the forward and reflected currents

> are in phase. The standing wave current is 2 amps.

Okay.

> Now do you see why standing wave current is considered not to be flowing?

I see how no current is considered to be flowing. Current is charge flowing. AC current is charge flowing back and forth.

But I see how two waves going in opposite directions create a standing wave where the magnitude of the sinusoidal current at different points along the standing wave have different magnitudes. And that between the nodes where the amplitude is zero, the phase of the current variation is constant.

3365. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:36:30 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <iBpUf.10251$TK2.8344@trnddc07>
Source record: 62476

<w8ji@akorn.net> wrote in message
news:1143078002.731378.198740@g10g2000cwb.googlegroups.com...
> I've been modeling V beams off and on for a few years now, and never
> can seem to get one that has useful gain.
>
> Has anyone seen a successful model anyplace of a two or three wave V
> with good gain??
>
> 73 Tom
>
Hi Tom,
I have a model of a 5 wavelength 24MHz Vee beam in AO- I can send the file
if it is useful to you. AO reports 11dBi free space gain. Included angle
appears to be 44 degrees.

Dale W4OP

3366. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:37:53 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <w0zUf.14041$6a1.12347@fed1read04>
Source record: 62515

Balloon Antenna URL's

http://www.qsl.net/g4vgo/index.htm

http://www.hard-core-dx.com/nordicdx/antenna/special/baloon.html

And a lawn chair balloon flight (;-)

http://home.earthlink.net/~quade/lawnchair.html

--
CL -- I doubt, therefore I might be !

"artie" <artie.m@gNOSPAMmail.com> wrote in message
news:220320061901558586%artie.m@gNOSPAMmail.com...
> In article <dvr5reddg1@news.tiscali.fr>, Deni
> <telegrafiste@tiscali.fr> wrote:
>
>> I'm going to have a go with a 3/8 wavelength (for 160M) wire, lifted by
>> a 2M helium balloon during the summer months. The first 40' of wire will
>> be supported vertically by a fibre glass mast then the remaining 156' by
>> the balloon. I have a ground plane in place already and will use a
>> manual tuner at the base to 50 ohm coax, I expect to use this on other
>> bands besides Top band. What is a good type of wire to use, obviously
>> flexible, not too heavy but good copper content, or would electric fence
>> cord (with woven in stainless steel strands) be too lossy? looking for
>> any tips advice etc.
>>
>> 73, Deni
>> F5VJC
>
> Been there, done that, lived to tell the tale... Ended up putting the
> wire spool in a metal can and feeding the entire can, so the wire on
> the spool wasn't some weird inductor.
>
> As other OPs point out, be aware of your local aviation authority
> rules. In the U.S., flying things above a few hundred feet can garner
> the wrong kind of attention.
>
> In more rural areas, you may garner attention from people with rifles.
>
> Discharge off the end of the wire tends to disagree with thin balloon
> material; a few meter stringer of nonconductive line is a *good* idea
> (or have a backup balloon and a backup supply of gas).
>
> Helium is for pansies. Use hydrogen; it won't leak as fast (really --

> those heliums are solitary little sneaky bastards and will get out of
> anything, while hydrogens are diatomic and tend to stick around
> longer).
>
> Above all, have fun!
>
> --
> Namaste--

3367. Re: Multiband Dipole Angles

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:39:17 UTC
From: Rick Frazier <rickf@rickfrazier.com>
Message-ID: <VDpUf.3686$4N1.3520@trnddc06>
Source record: 62477

Troy Majors wrote:

> What effect will the following have:
>
> both legs of the multiband dipole 60 to 65 feet up in the air cannot be in a
> straight line, but one leg must vary from a true north-south diple to the
> northeast at about a 35-40 degree angle from the other leg. Also, both legs
> slant downward in a slight inverted-V configuration, probably about 20-25
> degrees. The feed line will come straight down at a 90 degree angle from
> the dipole legs, but will then split the difference in its horizontal move
> along the ground to the house. How much do I lose from all this compared to
> a dipole with both legs straight in line, and the feedline 90 degrees from
> the dipole both vertically and horizontally?
>
> All this is driven by the size of the lot, the placement of the trees in the
> back and front yards, the direction and density of the various limbs off the
> trees, and the level of my skill with a slingshot. I have the pilot ropes
> in place but have not raised the antenna yet. Any advice before I commit to
> this configuration?
>
> Thanks,
> Troy
>
>
Yeah, put it up, get on the air and enjoy...

You probably wouldn't notice the differences in antenna patterning or
gain, unless you have access to a really big test range and good
evaluation equipment.

You should, however, check the resonant frequencies after it's up, and
adjust the length (the extra tails, if needed can hang straight down if
needed without any reall effect on pattern). You've already got the
hard part done, getting the support ropes in place.

Agonizing over the minimal effect it has over a "perfect" antenna isn't
worth the time.

thanks
--Rick AH7H

3368. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 04:57:11 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <oP-dnT6EP9PRtL_ZnZ2dnUVZ_tGdnZ2d@adelphia.com>
Source record: 62478

Roy Lewallen wrote:
> John Popelish wrote:
(snip)

>> But any real, physical inductor has shunt capacitance to its
>> surroundings. So if you neglect this without considering whether or
>> not this is reasonable, you are going to be blindsided by its effects,
>> eventually.
>
> I don't disagree with anything you've said. The point I was trying to
> make was that the resemblance of a coil to a transmission line depends
> not only on the coil but also its capacitance to other objects -- and
> not to its relationship to traveling current waves. One thing I've seen
> done on this thread is to use the C across the inductor in transmission
> line formulas, appearing to give the coil a transmission line property
> all by itself and without any external C. This is incorrect.

Yep. It is capacitance between each part of the coil and somewhere
other than the coil that makes it act like a transmission line.

>>> Remove the shunt C and it ceases looking like a transmission line.
>>
>>
>> How do I remove the shunt C of an inductor? With an active guarding
>> scheme?
>
>
> Actually, you can reduce it to a negligible value by a number of means.
> One I've done is to wind it as a physically small toroid.

Yes, smaller means less shunt capacitance. But less is not zero.
There is always some.

> In the example
> discussed in the next paragraph, removing ground from the model reduces
> the external C to a small enough value that the current at the coil ends
> become nearly equal.

Nearly equal, but not equal, yes. In some cases nearly is close
enough to equal that you can neglect it and get a reasonable
approximation. In other cases the approximation is not so reasonable.
It is a matter of degree.

> That of course isn't an option in a real mobile
> coil environment, but it illustrates that the current drop from one end
> to the other, which in some ways mimics a transmission line, is due to

> external C rather than reaction with traveling waves as Cecil claims.

I don't see it as a "rather", but as an effect that becomes non
negligible under some circumstances.

> In
> my modification to Cecil's EZNEC file I showed how the coil behaves the
> same with no antenna at all, just a lumped load impedance. As long as
> the load impedance and external C stay the same, the coil behavior stays
> the same.

Excellent. As long as there is external C, the coil acts in a non
lumped way, regardless of whether its current passes to an antenna or
a dummy load. This is the same result you would get with any
transmission line, also, except that the C is inside the line, instead
of all around it.

> This isn't, however, to discount the possibility of the coil
> interacting with the antenna's field. It just wasn't significant in that
> case.

Okay.

>> So whether or not this coil is acting as a slow wave transmission line
>> in addition to being inductive depends on the surrounding fields and
>> connections? I have no trouble with that.
>
>
> Well, not a "slow wave" transmission line.

Its propagation is a lot slower than a normal transmission line based
on straight conductors, isn't it?

> We shouldn't confuse an
> ordinary lumped LC transmission line approximation with a true slow wave
> structure such as a helical waveguide (next item).

Heaven forfend. ;-) I am not clear on the difference.

> The propagation
> velocity of the equivalent transmission line is omega/sqrt(LC), so the
> speed depends equally on the series L and the shunt C.

Per unit of length in the direction of propagation. Helical coils
have a lot of L in the direction of propagation, compared to straight
wire lines, don't they?

> And let's talk for a minute about the coil "acting like" a transmission
> line. A transmission line is of course a distributed circuit. But you
> can make a single pi or tee section with lumped series L and shunt C
> which has all the characteristics of a transmission line at one
> frequency(*), including time delay, phase shift, characteristic
> impedance, impedance transformation, and everything else. If put into a
> black box, you wouldn't be able to tell the difference among the pi,

> tee, or transmission line -- at one frequency. You could even sample the
> voltage and current with a Bird wattmeter and conclude that there are
> traveling voltage and current waves in both cases, and calculate the
> values of the standing waves on either "transmission line". And this is
> with a pure inductance and capacitance, smaller than the tiniest
> components you can really make. With a single section, you can mimic any
> transmission line Z0 and any length from 0 to a half wavelength. (The
> limiting cases, however, require some components to be zero or
> infinite.) So you can say if you wish that the inductor in this network
> "acts like" a transmission line -- or you can equally correctly say that
> the capacitor does, because it's actually the combination which mimics a
> transmission line. But only over a narrow range of frequencies, beyond
> which it begins deviating more and more from true transmission line
> behavior. To mimic longer lines or mimic lines over a wider frequency
> range requires more sections.

Hence a description that includes both lumped and distributed attributes.

> So what can we conclude about inductors from this similar behavior?
> Certainly not that there's anything special about inductors interacting
> with traveling waves or that inductors comprise some kind of "slow wave
> structure". The duality comes simply from the fundamental equations
> which describe the nature of transmission lines, inductances, and
> capacitances.

The question, I think is whether large, air core coils act like a
single inductance (with some stray capacitance) that has essentially
the same current throughout, or is a series of inductances with
distributed stray capacitance) that is capable of having different
current at different points, a la a transmission line. And the answer
must be that it depends on the conditions. At some frequencies, it is
indistinguishable from a lumped inductance, but at other frequencies,
it is clearly distinguishable. You have to be aware of the boundary case.

> Because the LC section's properties are identical to a transmission
> line's at one frequency, we have our choice in analyzing the circuit. We
> can pretend it's a transmission line, or we can view it as a lumped LC
> network. If we go back to the fundamental equations of each circuit
> element, we'll find that the equations end up exactly the same in either
> case. And the results from analyzing using each method are identical --
> if not, we've made an error.

But a continuous coil is not a series of discrete lumped inductances
with discrete capacitances between them to ground, but a continuous
thing. In that regard, it bears a lot of similarity to a transmission
line. But it has flux coupling between nearby turns, so it also has
inductive properties different from a simple transmission line. Which
effect dominates depends on frequency.

> The coil in the EZNEC model on Cecil's web page acts just like we'd
> expect an inductor to act.

A perfect point sized inductor? I don't think so.

> With ground present constituting a C, the
> circuit acts like an L network made of lumped L and C which behaves
> similarly to a transmission line. With ground, hence external C, absent,
> it acts like a lumped L. (There are actually some minor differences, due
> to imperfect coupling between turns and to coupling to the finite sized
> external circuit.) The combination of L and C "act like" a transmission
> line, just like any lumped L and C. And it doesn't care whether the load
> is a whip or just lumped components.

I agree with the last sentence. The ones before that seem self
contradictory. First you say it acts just like an inductor, then you
say it acts like a transmission line. These things (in the ideal
case) act very differently.

> (*) It actually acts like a transmission line at many frequencies, but a
> different length and Z0 of line at each frequency. To mimic a single
> line over a wide frequency range requires additional sections.

I think I agree with this. Either a simple transmission line or a
simple inductance description is incomplete. It does some of both.

>>> As far as considering a coil itself as a "slow wave structure", Ramo
>>> and Whinnery treat this subject. It's in the chapter on waveguides,
>>> and they explain how a helix can operate as a slow wave waveguide
>>> structure. To operate in this fashion requires that TM and TE modes
>>> be supported inside the structure which in turn requires a coil
>>> diameter which is a large part of a wavelength. Axial mode helix
>>> antennas, for example, operate in this mode. Coils of the dimensions
>>> of loading coils in mobile antennas are orders of magnitude too small
>>> to support the TM and TE modes required for slow wave propagation.
>>
>>
>> I'll have to take your word for this limitation. But it seems to me
>> that the length of the coil in relation to the wavelength and even the
>> length of the conductor the coils is made of are important, also.
>
>
> Important for what? No matter how long the coil or how many turns of the
> wire, a small (in terms of wavelength) inductor won't act like a slow
> wave structure or an axial mode helical antenna.

But its propagation speed will be slower than it would be if the wire
were straight. don't know if that qualifies it for a "slow wave" line
or not.

> This is for the same
> reason that a two inch diameter pipe won't perform as a waveguide at 80
> meters -- there's not enough room inside to fit the field distribution
> required for that mode of signal propagation. There will of course be
> some point at which it'll no longer act as a lumped inductor but would
> have to be modeled as a transmission line. But this is when it becomes a

> significant fraction of a wavelength long.

Why can't it be modeled as a transmission line before it is that long?
will you get an incorrect result, or is it just a convenience to
model it as a lumped inductor, instead?

> If the turns are very loosely
> coupled to each other, the wire length becomes more of a determining
> factor. As I mentioned in earlier postings, there's a continuum between
> a straight wire and that same wire wound into an inductor. As the
> straight wire is wound more and more tightly, the behavior transitions
> from that of a wire to that of an inductance. There's no abrupt point
> where a sudden change occurs.

Yes.

3369. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 05:03:53 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <FYGdnf_PJedAt7_ZnZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 62479

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> That's exactly the difference. But if you measure a single point, you
>> can't tell whether you are measuring a point on a traveling wave or a
>> standing wave. Agree?
>>
>
> There seems to be some confusion about just what a standing wave is.
>
> A standing wave is the result of, and the sum of, two or more traveling
> waves. There aren't points which are "on" one or the other.

Sure there are. If there is a standing wave on a wire, and you have a tiny current transformer sensor you can slide along the wire, you can measure the instantaneous current (or the RMS) at any point along the wire. If the sensor sits at a single point and sees an AC current, you have no way, from this one measurement, if this current is the result of a standing wave (two oppositely traveling equal waves adding), or a single traveling wave, or any combination of traveling waves of different amplitudes. You know only the net current at that point.

> If you can
> separately measure or calculate the values of the traveling current
> waves at any point, you can add them to get the total current (what
> Cecil calls "standing wave current") at that point.

That is what I mean by the current at a point.

> If you add the
> traveling current waves at each point along the line and plot the
> amplitude of the sum (that is, of the total current) versus position,
> you see a periodic relationship between the amplitude and position. It's
> this relationship which is called a "standing wave". It's so called
> because its position relative to the line stays fixed. It's simply a
> graph of the total current (the sum of the traveling waves) vs. position.

I have no disagreement with this description.

3370. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 05:10:08 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <dtWdnWGZ_NbIsb_ZnZ2dnUVZ_vadnZ2d@adelphia.com>
Source record: 62480

Cecil Moore wrote:

> And there's no such thing as current imbalance based on standing
> wave currents being different at each end of a loading coil.
> "Current imbalance" is a concept that doesn't apply to standing
> waves. "Phase rotation with position" is a concept that doesn't
> apply to standing waves. Standing wave current is NOT ordinary
> current. It is the superposition of two ordinary currents.

You two are so close to agreement. Standing waves have a current that varies with position. The fact that the EZNEC simulation of a loading coil shows differing current in a situation that is a fairly pure standing wave situation (more energy bouncing up and down the antenna than is radiating from it) means that the RMS current will vary along the standing wave. And, since the simulation shows a different current magnitude at the two ends of the coil, a significant part of a standing wave cycle must reside inside the coil (more than the physical length between the two ends of the coil would account for).

In one case (the highest frequency one) the phase of the current even reverses from one end of the coil to the other, as well as an amplitude variation, indicating that a standing wave node occurs some where inside the coil, and the two ends are on opposite ends of that node. If the two currents had been equal, but 180 degrees out of phase, the node would have been in the center of the coil.

3371. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 05:53:45 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143093225.723635.85530@t31g2000cwb.googlegroups.com>
Source record: 62481

Cecil wrote,
"The forward current is equal at both ends of the coil. The reflected current is equal at both ends of the coil."

If that's really true, then the net current is precisely equal at both ends of the coil. I thought you had been claiming that the current is different at each end. Which way is it going to be? If they are different phases, then they are NOT equal. If they are different phases, where does the phase shift COME FROM? If I allow a wave in one direction ONLY and the currents at the two ends are DIFFERENT in phase, WHAT HAPPENS inside the coil to make them different? Where does the extra charge come from, or go to?

It's all very simple. Yawn.

Hint: Replace the coil with a piece of coaxial transmission line, formed into a loop so the input and output ends are adjacent. Short the outer conductors together and notice that nothing changes in terms of the voltages across each end of the line and currents in the center conductors at each end. Note the difference in current at the two ends of the line, and note the current in the single outer conductor terminal of this three-terminal system. Notice that the sum of all three currents at every instant in time is essentially zero (current direction taken as positive going into each terminal). Got it yet? Do you understand WHAT it is, besides the inductance, that allows a coil to look like a transmission line? Do you understand that the mode is not quite TEM, so some of the usual TEM transmission line behaviour is not going to hold?

Cheers,
Tom

3372. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 06:01:45 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143093705.598974.199250@i40g2000cwc.googlegroups.com>
Source record: 62482

Cecil wrote, among other things,
"One amp of forward current is flowing into the coil and one
amp of forward current is flowing out of the coil. Charge is
balanced."

Absolutely NOT! You said the phase difference between the two ends is 45 degrees. Therefore, charge "input" and "output" is balanced ONLY twice during a cycle, when the instantaneous currents are the same. No phase need apply here: we're talking INSTANTANEOUS currents. The rest of the time, there's net charge accumulating inside the coil half the time, and net charge coming out the other half the time. GOT IT yet??? You do NOT need phasor math to do this!

WHAT does that charge represent, Cecil? C'mon, you can say it...

Cheers,
Tom
(Sorry, no prizes. They've already been awarded to John.)

3373. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 06:16:17 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143094577.476596.232740@i39g2000cwa.googlegroups.com>
Source record: 62483

So, why is it that you need "tens of microhenries"?? Having built (after doing some redesign on it) a doppler-scanning antenna before, I'm having a hard time seeing why you would need that sort of inductance in your antenna switch. I guess you better use some low capacitance PIN diodes, and resonate them with inductances to reflect a high impedance back to the "off" antennas...and I can see a need for RF chokes that represent a couple hundred ohms reactance at 2.4GHz, but that's only a few nanohenries, not tens of microhenries.

You should be able to have one diode forward biased and the rest reverse biased by the remainder of your logic voltage level...if you want more (why?), use high voltage open collector gates as drivers, or just four discrete transistors.

Layout: make it very symmetrical, so each antenna behaves the same way. Standard microstrip techniques should work fine. If you're not used to working with this stuff, I highly recommend enlisting help from someone with experience, at least to give you occasional guidance. In-person help will be much more useful than what you get on r.r.a.a.

Cheers,
Tom

3374. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 07:03:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1224i2p9j0tr33d@corp.supernews.com>
Source record: 62484

John Popelish wrote:
> Roy Lewallen wrote:
> . . .
> > In
>> my modification to Cecil's EZNEC file I showed how the coil behaves
>> the same with no antenna at all, just a lumped load impedance. As long
>> as the load impedance and external C stay the same, the coil behavior
>> stays the same.
>
> Excellent. As long as there is external C, the coil acts in a non
> lumped way, regardless of whether its current passes to an antenna or a
> dummy load. This is the same result you would get with any transmission
> line, also, except that the C is inside the line, instead of all around it.

No, the coil is acting in a lumped way whether the C is there or not. A combination of lumped L and lumped C mimics a transmission line over a limited range. But neither the L nor C is acting as more or less than a lumped component. All the "transmission line" properties I listed in my last posting for the LC circuit can readily be calculated by considering L and C to be purely lumped components.

>> Well, not a "slow wave" transmission line.
>
> Its propagation is a lot slower than a normal transmission line based on
> straight conductors, isn't it?

There's more L per unit length than on an equal length line made with straight wire, so yes the propagation speed is slower. But there's nothing magic about that. A lumped LC circuit can be found to have exactly the same delay and other characteristics of a transmission line, and it can do it in zero length.

>
>> We shouldn't confuse an ordinary lumped LC transmission line
>> approximation with a true slow wave structure such as a helical
>> waveguide (next item).
>
> Heaven forfend. ;-) I am not clear on the difference.

A slow wave structure is a type of waveguide in which the fields inside propagate relatively slowly. Ramo and Whinnery is a good reference, and I'm sure I can find others if you're interested.

>> The propagation velocity of the equivalent transmission line is
>> omega/sqrt(LC), so the speed depends equally on the series L and the
>> shunt C.

>
> Per unit of length in the direction of propagation. Helical coils have
> a lot of L in the direction of propagation, compared to straight wire
> lines, don't they?

Yes indeed, as discussed above. And as I said above, you can get plenty
of delay from a lumped L and C of arbitrarily small physical size.

> . . .
>> So what can we conclude about inductors from this similar behavior?
>> Certainly not that there's anything special about inductors
>> interacting with traveling waves or that inductors comprise some kind
>> of "slow wave structure". The duality comes simply from the
>> fundamental equations which describe the nature of transmission lines,
>> inductances, and capacitances.
>
> The question, I think is whether large, air core coils act like a single
> inductance (with some stray capacitance) that has essentially the same
> current throughout, or is a series of inductances with distributed stray
> capacitance) that is capable of having different current at different
> points, a la a transmission line. And the answer must be that it
> depends on the conditions. At some frequencies, it is indistinguishable
> from a lumped inductance, but at other frequencies, it is clearly
> distinguishable. You have to be aware of the boundary case.

Yes. It's a continuum, going from one extreme to the other. As Ian has
pointed out several times, any theory should be able to transition from
one to the other. The example Cecil posted on his web page was one for
which the L could be modeled completely adequately as a lumped L, at
least so far as its current input and output properties were concerned.
Being a significant fraction of the antenna's total length, it of course
does a substantial amount of radiating which a lumped model does not.

>> Because the LC section's properties are identical to a transmission
>> line's at one frequency, we have our choice in analyzing the circuit.
>> We can pretend it's a transmission line, or we can view it as a lumped
>> LC network. If we go back to the fundamental equations of each circuit
>> element, we'll find that the equations end up exactly the same in
>> either case. And the results from analyzing using each method are
>> identical -- if not, we've made an error.
>
> But a continuous coil is not a series of discrete lumped inductances
> with discrete capacitances between them to ground, but a continuous
> thing. In that regard, it bears a lot of similarity to a transmission
> line. But it has flux coupling between nearby turns, so it also has
> inductive properties different from a simple transmission line. Which
> effect dominates depends on frequency.

Yes, that's correct. But if it's short in terms of wavelength, a more
elaborate model than a single lumped inductance won't provide any
different results.

>
>> The coil in the EZNEC model on Cecil's web page acts just like we'd
>> expect an inductor to act.
>
> A perfect point sized inductor? I don't think so.

Except for the radiation, yes. In what ways do you see it differing?
>
>> With ground present constituting a C, the circuit acts like an L
>> network made of lumped L and C which behaves similarly to a
>> transmission line. With ground, hence external C, absent, it acts like
>> a lumped L. (There are actually some minor differences, due to
>> imperfect coupling between turns and to coupling to the finite sized
>> external circuit.) The combination of L and C "act like" a
>> transmission line, just like any lumped L and C. And it doesn't care
>> whether the load is a whip or just lumped components.
>
> I agree with the last sentence. The ones before that seem self
> contradictory. First you say it acts just like an inductor, then you
> say it acts like a transmission line. These things (in the ideal case)
> act very differently.

Let me try again. The combination of L and the C to ground act like a
transmission line, just like a lumped LC acts like a transmission line.
With the ground removed, there's nearly no C, so there's very little
transmission-line like qualities. Of course you could correctly argue
that there's still a tiny amount of C to somewhere and so you could
still model the circuit as a transmission line. The equivalent
transmission line would have very high impedance and a velocity factor
very near one. Such a transmission line is difficult to distinguish from
a plain inductor.

>>. . .
>> Important for what? No matter how long the coil or how many turns of
>> the wire, a small (in terms of wavelength) inductor won't act like a
>> slow wave structure or an axial mode helical antenna.
>
> But its propagation speed will be slower than it would be if the wire
> were straight. don't know if that qualifies it for a "slow wave" line
> or not.

That's the third time for this. Sure. A theoretical lumped inductor and
a theoretical lumped shunt capacitor can have a very slow propagation
velocity, and with no physical length at all. I'm failing to see why
this has some special relevance.

>> This is for the same reason that a two inch diameter pipe won't
>> perform as a waveguide at 80 meters -- there's not enough room inside
>> to fit the field distribution required for that mode of signal
>> propagation. There will of course be some point at which it'll no
>> longer act as a lumped inductor but would have to be modeled as a
>> transmission line. But this is when it becomes a significant fraction
>> of a wavelength long.

>
> Why can't it be modeled as a transmission line before it is that long?
> will you get an incorrect result, or is it just a convenience to model
> it as a lumped inductor, instead?

Hm, I tried to explain that, but obviously failed. You can model it
either way. If you've done your math right, you'll get exactly the same
answer, because you'll find that you're actually solving the same equations.

>. . .

Roy Lewallen, W7EL

3375. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 07:22:22 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1224j5f3hgauge9@corp.supernews.com>
Source record: 62485

John Popelish wrote:
>
> You two are so close to agreement. Standing waves have a current that
> varies with position. The fact that the EZNEC simulation of a loading
> coil shows differing current in a situation that is a fairly pure
> standing wave situation (more energy bouncing up and down the antenna
> than is radiating from it) means that the RMS current will vary along
> the standing wave. And, since the simulation shows a different current
> magnitude at the two ends of the coil, a significant part of a standing
> wave cycle must reside inside the coil (more than the physical length
> between the two ends of the coil would account for).

No, you're misinterpreting what you're seeing. Imagine an LC L network with theoretically lumped series L and shunt C. If you look at the currents at the input and output of the perfect inductor, you'll find that they're exactly the same. If, however, you look at the currents in and out of the *network* you'll see that they're different, because of current going to ground through the C. And, as I said before, you can even pretend it's a transmission line and measure forward and reverse traveling waves and a standing wave ratio. But with zero length, there can be no standing waves inside the inductor. Yet the terminal characteristics of the network are the same as a transmission line. You don't need to imagine standing waves residing inside the inductor in the LC circuit, and you don't need to imagine them inside the inductor in Cecil's model, either.

When you look at the currents reported by EZNEC for the model on Cecil's web page, the current at the top of the coil is the equivalent to the *network* current described above. It's the current flowing through the inductance minus the current being shunted to ground via the C between the coil and ground. You can tell just how much this is by looking at my modified model and subtracting the current going into the coil from ground from the current going into ground from the added wire. They're not the same -- the difference is the displacement current through the C from the inductor to ground. When I removed the ground, you could then see the current flowing through the inductor, by itself, without the current being shunted off. And lo and behold, it's nearly the same at both ends of the inductor, showing that the inductor is behaving very much like a lumped L. Only in conjunction with the C to ground does the combination mimic a transmission line -- just like any other lumped LC circuit.

Of course, at some length and/or poorness of interturn coupling, a coil will start behaving in a way we can't adequately model as a lumped L. But that's not the case here.

> . . .

Roy Lewallen, W7EL

3376. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 08:25:52 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <qKOdesGQuIIEFAPT@ifwtech.co.uk>
Source record: 62486

Cecil Moore wrote:
>> That's exactly the difference. But if you measure a single point,
>>you can't tell whether you are measuring a point on a traveling wave
>>or a standing wave. Agree?
>
>I agree but who would be stupid enough to measure just a single
>point?

Electronic components are exactly that stupid. They have no conception of traveling or standing waves. They react simply to the voltages and currents they experience at their terminals.

As far as current is concerned, that means the simple movement of charge past a single point.

You see a larger picture of the whole antenna, so you can choose many different ways to theorize about it. But your theory cannot be correct if it requires that components behave in different, special ways according to the way you happen to be thinking about it at the time.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3377. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 08:35:16 UTC
From: jeff <g8hul@hotmail.co.uk>
Message-ID: <1143102916.314030.219170@e56g2000cwe.googlegroups.com>
Source record: 62487

Surely 100nF would kill yoru swithcing waveform at 30-50kHz.
Also the value of choke needed for 2.4GHz is in the nano Henys range
not the micro Henrys
It you wish the docouple lower frequencies then cascade L/C pairs,
keeping the high SRF items at the 2.4GHZ end

73
Jeff

3378. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:27:06 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <KRtUf.4250$tN3.88@newssvr27.news.prodigy.net>
Source record: 62488

Roy Lewallen wrote:
> > Important for what? No matter how long the coil or how many turns of
> > the wire, a small *diameter* (in terms of wavelength) inductor won't
> > act like a slow wave structure or an axial mode helical antenna. . .

So many words trying to avoid the real issue which is: What is
the percentage of a wavelength occupied by a loading coil. It
doesn't matter what the size of the coil is. In the real world,
a loading coil occupies a certain percentage of a wavelength.

For a small coil, that percentage will be small. For a large
coil that percentage will be large.

We have had to throw out your phase measurements using the phase
of standing wave currents because that phase you used is unchanging
whether in a wire or in a coil. Your phase measurements tell us
zero information about the delay through a coil.

That leaves us only with indirect measurements based on the self-
resonant frequency of the coil in the mobile environment or the
phase information left in the standing wave current amplitude over
the 90 degree antenna.

My self-resonant frequency measurements indicate that a 75m loading-
coil occupies 40-60 degrees of a 360 degree wavelength. That's
11%-17% of a wavelength. Dr. Corum's papers agree with that
estimate.

Another way of estimating the percentage of the antenna occupied
by the loading coil would be to plot the current segments from
feedpoint to tip. Then draw a cosine wave on the same graph with
0 degrees at the feedpoint and 90 degrees at the tip. A rough
estimate of the percentage occupied by the coil would be the
slice of the cosine wave from the bottom of the coil to the
top of the coil.

Mere words are not going to change the percentage of a wavelength
occupied by a real-world loading coil.
--
73, Cecil http://www.qsl.net/w5dxp

3379. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:28:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <iTtUf.4251$tN3.5@newssvr27.news.prodigy.net>
Source record: 62489

Butch Magee wrote:
> Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
> whill i HAVE A VERY really very question on the board. You know, the
> one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
> my thoughts work or whut!

I apologize, Butch. I haven't had time to read it. It's 3:30AM
and I'm getting ready to leave for spring break. I'll be back
Monday.
--
73, Cecil http://www.qsl.net/w5dxp

3380. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:34:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <gYtUf.4252$tN3.1389@newssvr27.news.prodigy.net>
Source record: 62490

John Popelish wrote:
> Oh poo. At current nodes charge piles up and spreads out, on
> alternating half cycles. For one half cycle, the pile is positive, and
> for the next it is negative. This is a basic transmission line
> concept. If transmission lines had no shunt capacitance, there would be
> no place to put this charge. But there is, so it is no problem. Whether
> the transmission line is coax, twin line or a slow wave helix makes
> little difference. The process is similar. Isn't this what you have
> been arguing?

If the forward traveling wave is equal in magnitude at both ends of the
coil, there is no net storage of energy due to the forward traveling wave.

If the reflected traveling wave is equal in magnitude at both ends of the
coil, there is no net storage of energy due to the reflected traveling
wave.

Superposing those two waves still results in no net storage of energy.
Sorry, got to hit the road.
--
73, Cecil http://www.qsl.net/w5dxp

3381. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:47:20 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <I8uUf.4253$tN3.850@newssvr27.news.prodigy.net>
Source record: 62491

John Popelish wrote:
> The question, I think is whether large, air core coils act like a single
> inductance (with some stray capacitance) that has essentially the same
> current throughout, or is a series of inductances with distributed stray
> capacitance) that is capable of having different current at different
> points, a la a transmission line. And the answer must be that it
> depends on the conditions. At some frequencies, it is indistinguishable
> from a lumped inductance, but at other frequencies, it is clearly
> distinguishable. You have to be aware of the boundary case.

Dr. Corum says the boundary is 15 degrees, or 0.04 wavelength.
Another place in his class notes he says that if 1/6 of a wavelength
of wire is used to make the coil, the lumped-circuit model will NOT
work. My 75m bugcatcher coil is more than 1/6 of a wavelength of
wire.

> But a continuous coil is not a series of discrete lumped inductances
> with discrete capacitances between them to ground, but a continuous
> thing. In that regard, it bears a lot of similarity to a transmission
> line. But it has flux coupling between nearby turns, so it also has
> inductive properties different from a simple transmission line. Which
> effect dominates depends on frequency.

Dr. Corum has a test equation to see if his velocity factor equation
applies. The test is: 5*N*D^2/lamda(0) <= 1 where N is number of turns,
D is the diameter of the coil, and lamda(0) is the self-resonant
frequency. If this equation is satisfied, then equation (32) applies
for velocity factor. For my 75m bugcatcher coil, the test number is
0.4 <= 1 and the velocity factor equation yields 0.0175. That's certainly
a slow wave device.

> But its propagation speed will be slower than it would be if the wire
> were straight. don't know if that qualifies it for a "slow wave" line
> or not.

A velocity factor of 0.0175 for a 75m bugcatcher seems to qualify.
--
73, Cecil http://www.qsl.net/w5dxp

3382. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:51:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <LcuUf.4254$tN3.201@newssvr27.news.prodigy.net>
Source record: 62492

John Popelish wrote:
> If there is a standing wave on a wire, and you have a
> tiny current transformer sensor you can slide along the wire, you can
> measure the instantaneous current (or the RMS) at any point along the
> wire. If the sensor sits at a single point and sees an AC current, you
> have no way, from this one measurement, if this current is the result of
> a standing wave (two oppositely traveling equal waves adding), or a
> single traveling wave, or any combination of traveling waves of
> different amplitudes. You know only the net current at that point.

But if one it smart enough to slide the sensor up and down the wire
and note the phase is fixed and unchanging, one knows he is dealing
with a standing wave.

>> If you add the traveling current waves at each point along the line
>> and plot the amplitude of the sum (that is, of the total current)
>> versus position, you see a periodic relationship between the amplitude
>> and position. It's this relationship which is called a "standing
>> wave". It's so called because its position relative to the line stays
>> fixed. It's simply a graph of the total current (the sum of the
>> traveling waves) vs. position.

And that's all it is - the sum of two traveling waves. A standing wave
has no separate existence of its own. It is an artifact of superposition.
--
73, Cecil http://www.qsl.net/w5dxp

3383. Re: Current through coils - BFD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:57:04 UTC
From: David J Windisch <davidjw@cinci.rr.com>
Message-ID: <QhuUf.49270$UZ5.4128@tornado.ohiordc.rr.com>
Source record: 62493

"BFD" ida "Before Final Decision", n'est ce pas?

"Richard Clark" <kb7qhc@comcast.net> wrote in message
news:mu7322hcinluakhvtib9t6l9a9104de8jj@4ax.com...
>
> Well, let's start with Yuri's emphasized and cogent assertion:
> "The current in a typical loading coil in the shortened antennas
BIGSNIP of a howler

3384. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 09:59:03 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <HjuUf.4255$tN3.3743@newssvr27.news.prodigy.net>
Source record: 62494

John Popelish wrote:
> Standing waves have a current that
> varies with position. The fact that the EZNEC simulation of a loading
> coil shows differing current in a situation that is a fairly pure
> standing wave situation (more energy bouncing up and down the antenna
> than is radiating from it) means that the RMS current will vary along
> the standing wave. And, since the simulation shows a different current
> magnitude at the two ends of the coil, a significant part of a standing
> wave cycle must reside inside the coil (more than the physical length
> between the two ends of the coil would account for).

And since a significant part of a standing wave cycle resides inside
the coil, it occupies a non-negligible percentage of a wavelength.
By every valid method, measured or calculated, a 75m bugcatcher
coil occupies tens of degrees of a wavelength (out of 360 degrees).
My best estimate is 60 degrees in a 75m mobile antenna.

> In one case (the highest frequency one) the phase of the current even
> reverses from one end of the coil to the other, as well as an amplitude
> variation, indicating that a standing wave node occurs some where inside
> the coil, and the two ends are on opposite ends of that node. If the
> two currents had been equal, but 180 degrees out of phase, the node
> would have been in the center of the coil.

Yes, if a current node exists inside a coil, the standing wave currents
are flowing into the coil at the same time from both ends and 1/2 cycle
later they are both flowing out of the coil at the same time. Wonder
how a lumped-circuit inductance handles that? :-)
--
73, Cecil http://www.qsl.net/w5dxp

3385. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 10:10:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <juuUf.4256$tN3.2031@newssvr27.news.prodigy.net>
Source record: 62495

K7ITM wrote:

> Cecil wrote,
> "The forward current is equal at both ends of the coil. The reflected
> current is equal at both ends of the coil."
>
> If that's really true, then the net current is precisely equal at both
> ends of the coil.

I was speaking above about the magnitudes only, not the phases.
It was clear from the rest of my posting that was the assumption.
The fact that you attempted to change the meaning by trimming is
noted.

So to be perfectly clear, here is my statement re-worded using
a 45 degree phase shift through the coil.

The forward current magnitude is equal at both ends of the coil.
The reflected current magnitude is equal at both ends of the coil.

At the bottom of the coil, the forward current is 1 amp at zero deg.
At the bottom of the coil, the reflected current is 1 amp at zero deg.
At the bottom of the coil, the standing wave current is 2 amps at
zero deg.

At the top of the coil, the forward current is 1 amp at -45 deg.
At the top of the coil, the reflected current is 1 amp at +45 deg.
At the bottom of the coil, the standing wave current is 1.4 amp at
zero deg.

I asked if you knew how to do phasor math but you trimmed out that
phasor math part of my posting.
--
73, Cecil http://www.qsl.net/w5dxp

3386. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 10:20:12 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <wDuUf.4257$tN3.3770@newssvr27.news.prodigy.net>
Source record: 62496

K7ITM wrote:

> Cecil wrote, among other things,
> "One amp of forward current is flowing into the coil and one
> amp of forward current is flowing out of the coil. Charge is
> balanced."
>
> Absolutely NOT! You said the phase difference between the two ends is
> 45 degrees. Therefore, charge "input" and "output" is balanced ONLY
> twice during a cycle, when the instantaneous currents are the same. No
> phase need apply here: we're talking INSTANTANEOUS currents.

Give us a break, Tom. Of course, we are *NOT* and never have been talking instantaneous currents. All currents ever discussed concerning this subject have been RMS currents. That's just your instantaneous strawman. Long term charge accumulation is averaged over many cycles. There is simply none of that because the traveling waves are not storing any net charge inside the coil. How can you get so desperate as to play such silly games?

My statement obviously meant: One amp of RMS forward current is flowing into the coil and one amp of RMS forward current is flowing out of the coil. Average charge is balanced.

Even though the standing wave current is different at each end of the coil, the average charge into and out of the coil is still balanced.
--
73, Cecil http://www.qsl.net/w5dxp

3387. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 10:28:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <bLuUf.4258$tN3.3991@newssvr27.news.prodigy.net>
Source record: 62497

Roy Lewallen wrote:
> No, the coil is acting in a lumped way whether the C is there or not.

That is a presupposition of the lumped-circuit model. You cannot
use that to try to prove the validity of the lumped-circuit model.

> A slow wave structure is a type of waveguide in which the fields inside
> propagate relatively slowly. Ramo and Whinnery is a good reference, and
> I'm sure I can find others if you're interested.

My 75m bugcatcher coil has a velocity factor of 0.0175 calculated,
0.015 measured. That's a slow wave structure.

> Yes indeed, as discussed above. And as I said above, you can get plenty
> of delay from a lumped L and C of arbitrarily small physical size.

Just as you can from an arbitrarily large 75m bugcatcher coil.
No extra capacitance needed.

> With the ground removed, there's nearly no C, so there's very little
> transmission-line like qualities.

You forgot to tell us how to remove the ground from my 75m bugcatcher
antenna system mounted on my GMC pickup.

> That's the third time for this. Sure. A theoretical lumped inductor and
> a theoretical lumped shunt capacitor can have a very slow propagation
> velocity, and with no physical length at all. I'm failing to see why
> this has some special relevance.

Because you reported zero phase shift through a real-world loading coil.
Since standing wave current phase is unchanging, you blundered badly.

The real question remains: What percentage of a wavelength does a 75m
bugcatcher coil occupy in a 75m mobile antenna installation? The answer
is tens of degrees.
--
73, Cecil http://www.qsl.net/w5dxp

3388. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 10:35:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <sRuUf.4259$tN3.456@newssvr27.news.prodigy.net>
Source record: 62498

Roy Lewallen wrote:
> If, however, you look at the currents in
> and out of the *network* you'll see that they're different, because of
> current going to ground through the C.

The main effect in a standing wave environment are the forward
and reflected phasors rotating in opposite directions. The
standing wave current is ZERO when those phasors are 180 degrees
out of phase. The standing wave current is maximum when those
phasors are in phase. "Current going to ground through the C"
is not even required.

> But with zero length, there
> can be no standing waves inside the inductor.

You keep saying stuff like this as if a zero length inductor
actually existed in reality. Wake up, Roy, and smell the
roses. That zero length inductor exists only in human minds.

> When you look at the currents reported by EZNEC for the model on Cecil's
> web page, the current at the top of the coil is the equivalent to the
> *network* current described above. It's the current flowing through the
> inductance minus the current being shunted to ground via the C between
> the coil and ground.

Huh? How do you explain the current at the top being greater than
the current at the bottom of the coil? Is the coil sucking current
from the ground?
--
73, Cecil http://www.qsl.net/w5dxp

3389. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 10:36:44 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <0TuUf.4260$tN3.427@newssvr27.news.prodigy.net>
Source record: 62499

Ian White GM3SEK wrote:
> You see a larger picture of the whole antenna, so you can choose many
> different ways to theorize about it. But your theory cannot be correct
> if it requires that components behave in different, special ways
> according to the way you happen to be thinking about it at the time.

Inuendo devoid of any technical content, Ian?

It is not my theory. It is the distributed network
model which you apparently reject.
--
73, Cecil http://www.qsl.net/w5dxp

3390. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 11:18:34 UTC
From: w8ji@akorn.net
Message-ID: <1143112714.314930.111790@t31g2000cwb.googlegroups.com>
Source record: 62500

Dale Parfitt wrote:
> <w8ji@akorn.net> wrote in message
> news:1143078002.731378.198740@g10g2000cwb.googlegroups.com...
> > I've been modeling V beams off and on for a few years now, and never
> > can seem to get one that has useful gain.
> >
> > Has anyone seen a successful model anyplace of a two or three wave V
> > with good gain??
> >
> > 73 Tom
> >
> Hi Tom,
> I have a model of a 5 wavelength 24MHz Vee beam in AO- I can send the file
> if it is useful to you. AO reports 11dBi free space gain. Included angle
> appears to be 44 degrees.

I don't have AO Dave, so a description will work.

That sounds like the problem I am seeing. With a 3-5 WL long V, I have
about the same gain as a three element Yagi. But I'll still try to
model your antenna with 5wl legs and 44 degree angle. Thanks.

3391. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 11:27:00 UTC
From: w8ji@akorn.net
Message-ID: <1143113220.180021.272500@e56g2000cwe.googlegroups.com>
Source record: 62501

Cecil Moore wrote:
> Roy Lewallen wrote:
> > If, however, you look at the currents in
> > and out of the *network* you'll see that they're different, because of
> > current going to ground through the C.
>
> The main effect in a standing wave environment are the forward
> and reflected phasors rotating in opposite directions. The
> standing wave current is ZERO when those phasors are 180 degrees
> out of phase. The standing wave current is maximum when those
> phasors are in phase. "Current going to ground through the C"
> is not even required.

That's utter nonsense Cecil, and why people aren't buying into your misconceived theories.
Maybe you can take some time to rethink your position while on vacation.

A two-terminal network that transforms impedance, now there's a concept!

An inductor behaves exactly the same way in or out of your so-called standing wave environment. It follows the same rules all the time.

Since your theory says otherwise, it has to be wrong.

Wave theory is just another way of analyzing a complex system. It doesn't change how things inside the system behave.

73 Tom

3392. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 11:36:18 UTC
From: w8ji@akorn.net
Message-ID: <1143113778.370901.113800@j33g2000cwa.googlegroups.com>
Source record: 62502

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > The point I (and others) tried to make was that in a small inductor
> > current was essentially equal at both ends of the coil, ...
>
> A 75m bugcatcher coil is NOT a small inductor. It is a slow-
> wave structure with a velocity factor of about 0.017, both
> measured and calculated. That gives my bugcatcher coil an
> electrical length at 4 MHz of about ~60 degrees.

Let's focus on one thing at a time.

You claim a bug cather coil has "an electrical length at 4MHz of ~60 degrees". That concept is easily proven false, just like the claim a short loaded antenna is "90-degree resonant". Both can be shown to be nonsense pictures of what is happening.

Assume I have a 30 degree long antenna. If the loading inductor is 60 electrical degrees long, I could move it anyplace in that antenna and have a 90 degree long antenna.

We all know that won't happen, so what is it you are really trying to say?

73 Tom

3393. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 11:39:35 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143113975.330869.228540@u72g2000cwu.googlegroups.com>
Source record: 62503

ive got some miscalculations as with regards to the impedance at
2.4ghz..
thanks.

i need more negative bias because the pin diode im using maximum Vr is
in -50V. reversing it with higher voltage will increase its isolation
capability as compared to a logic 0 volt level.

3394. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 12:24:58 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <sjsM00QaOpIEFAMG@ifwtech.co.uk>
Source record: 62504

Cecil Moore wrote:
>Ian White GM3SEK wrote:
>> You see a larger picture of the whole antenna, so you can choose many
>>different ways to theorize about it. But your theory cannot be
>>correct if it requires that components behave in different, special
>>ways according to the way you happen to be thinking about it at the time.
>
>Inuendo devoid of any technical content, Ian?
>

Precisely and specifically NOT that!

Let me have one last try:
The human observer sees a larger picture of the whole antenna, and can choose many different ways to theorize about it. But a theory cannot be correct if it requires that components behave in different, special ways according to the way a person happens to be thinking about it at the time.

If you cannot see that statement as a fundamental principle of scientific logic, then I have run out of ways to tell you.

Replacing the part of my previous message that you snipped:

>>Electronic components... have no conception of traveling or standing waves. They react simply to the voltages and currents they experience at their terminals.<<

They cannot behave in different ways for different types of current. If you want to analyse the current into different parts and give them different labels, a pure, lumped loading inductance MUST still respond to every kind of current in the same way.

>It is not my theory. It is the distributed network
>model which you apparently reject.

No, I reject your incorrect applications. The reasons may look simple but they are absolutely fundamental.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3395. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 12:42:05 UTC
From: jgboyles@aol.com
Message-ID: <1143117725.873311.311820@g10g2000cwb.googlegroups.com>
Source record: 62505

Butch Magee wrote:
> Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
> whill i HAVE A VERY really very question on the board. You know, the
> one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
> my thoughts work or whut!
>
> giddy-yupbapa mau-mau
>)cant remember where that came from, just enterred my head
> and has been plaqueing me for for days.............
>
> Butch KF5DE

Elvira?

Gary N4AST

3396. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 12:42:31 UTC
From: Doc <ltdoc@yahoo.com>
Message-ID: <1143117627_1535@sp6iad.superfeed.net>
Source record: 62506

Butch,
> giddy-yupbapa mau-mau
>)cant remember where that came from, just enterred my head
> and has been plaqueing me for for days..............

Statler Brothers
- 'Doc

3397. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 12:59:28 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QYwUf.49741$F_3.37304@newssvr29.news.prodigy.net>
Source record: 62507

Ian White GM3SEK wrote:
> Precisely and specifically NOT that!

:-) "My theory"? It's not my theory. Components behaving differently?
No. Special ways according to my thinking? Of course not. There's
nothing special. The "special magic thinking" is yours in thinking
that standing wave current is the same as traveling wave current.

> If you cannot see that statement as a fundamental principle of
> scientific logic, then I have run out of ways to tell you.

I see your statement for exactly what it is, Ian, full of inuendo
and ignorance of the nature of standing wave current.

Have you no clue what func(kx)*func(wt) really means?

>> It is not my theory. It is the distributed network
>> model which you apparently reject.
>
> No, I reject your incorrect applications.

You reject the distributed network analysis because you are
completely technically ignorant of the nature of standing
wave current.
--
73, Cecil http://www.qsl.net/w5dxp

3398. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 13:17:50 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <2exUf.49743$F_3.9045@newssvr29.news.prodigy.net>
Source record: 62508

w8ji@akorn.net wrote:
> That's utter nonsense Cecil, and why people aren't buying into your
> misconceived theories.

Sorry, Tom, that's distributed network analysis, something you
and others seem to be totally ignorant of and confused by.

I get emails every week from people who are buying into the
distributed network analysis. Otherwise, they are forced to
accept your magical thinking about reality.

> A two-terminal network that transforms impedance, now there's a
> concept!

It isn't a two-terminal network. It is a single-wire transmission
line over ground. It has forward and reflected waves working against
ground, similar to a two-wire transmission line.

> An inductor behaves exactly the same way in or out of your so-called
> standing wave environment. It follows the same rules all the time.

Quoting Dr. Corum again: "There are no standing waves [allowed]
on a lumped element circuit component. (In fact, lumped-element
circuit theory inherently employs the cosmological presupposition
that the speed of light is infinite, as every EE sophmore should
know.)"

"Lumped circuit theory fails because it's a theory whose
presuppositions are inadequate. Every EE in the world was warned
of this in their first sophmore circuits course."

Tom, where did you attend your sophmore EE classes?

> Since your theory says otherwise, it has to be wrong.

It is the distributed network theory, Tom, developed to handle
just such cases of failure of the lumped-element model. Both
models work in some instances. The distributed network model
works when the lumped-element model fails.

> Wave theory is just another way of analyzing a complex system. It
> doesn't change how things inside the system behave.

Exactly! But lumped-circuit theory changes how things inside
the system behave when standing waves are present. One can
observe its magical effects in your explanations. Unfortunately,
it is not supposed to change anything. When a model tries to change
the laws of physics, it's time to move to a more power model that

doesn't.

Bottom line: By every valid measurement and calculation, a 75m
bugcatcher coil occupies roughly 60% of a mobile antenna.
--
73, Cecil http://www.qsl.net/w5dxp

3399. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 13:19:58 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <2gxUf.15833$gD4.4913@trnddc05>
Source record: 62509

<w8ji@akorn.net> wrote in message
news:1143112714.314930.111790@t31g2000cwb.googlegroups.com...
>
> Dale Parfitt wrote:
>> <w8ji@akorn.net> wrote in message
>> news:1143078002.731378.198740@g10g2000cwb.googlegroups.com...
>> > I've been modeling V beams off and on for a few years now, and never
>> > can seem to get one that has useful gain.
>> >
>> > Has anyone seen a successful model anyplace of a two or three wave V
>> > with good gain??
>> >
>> > 73 Tom
>> >
>> Hi Tom,
>> I have a model of a 5 wavelength 24MHz Vee beam in AO- I can send the
>> file
>> if it is useful to you. AO reports 11dBi free space gain. Included angle
>> appears to be 44 degrees.
>
> I don't have AO Dave, so a description will work.
>
> That sounds like the problem I am seeing. With a 3-5 WL long V, I have
> about the same gain as a three element Yagi. But I'll still try to
> model your antenna with 5wl legs and 44 degree angle. Thanks.
>
Hi Tom et al,

This is from the AO library:
F=24.94

The vertex is at the origin: 0,0
X,Y of 1st leg is 185.44', -74.92' #12 wire
X,Y of 2nd leg is 185.44', 74.92' #12 wire

Fed at the origin and modeled in free space

AO reports
Z= 255- J706
Forward gain= 11.34dBi
F/B 2.70dB

Hope this is useful,

Dale W4OP

3400. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 13:43:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <mCxUf.49751$F_3.37818@newssvr29.news.prodigy.net>
Source record: 62510

w8ji@akorn.net wrote:
> You claim a bug cather coil has "an electrical length at 4MHz of ~60
> degrees". That concept is easily proven false, just like the claim a
> short loaded antenna is "90-degree resonant". Both can be shown to be
> nonsense pictures of what is happening.

Well, I've been challenging you to do just that for weeks now and
so far, nothing. Please note the contradiction between your statement
above which says an antenna doesn't have to be 90 degrees long to be
resonant and your statement below which says it does. Would you please
make up your mind?

> Assume I have a 30 degree long antenna. If the loading inductor is 60
> electrical degrees long, I could move it anyplace in that antenna and
> have a 90 degree long antenna.

This again demonstrates your misconceptions. Please pay attention
this time.

When my 75m bugcatcher coil is configured as a base-loaded coil
with a 7 foot whip, it occupies ~60 degrees of antenna. The 7
foot whip occupies ~10 degrees of the antenna. The total length
is only ~70 degrees, not 90 degrees. That 90 degrees is just your
strawman and you even contradicted yourself above.

The antenna doesn't have to be 90 degrees long. What has to
happen is for (Vfor+Vref)/(Ifor+Iref) to be resistive at the
feedpoint. There are many possibilities for that in antennas
not 90 degrees long. I gave one such example possibility
weeks ago. Perhaps you missed it.

I haven't measured the number of degrees occupied by a center-
loaded 75m bugcatcher coil. Since the inductance of the
center-loaded coil must be increased when moved from the base
to the center, it would occupy more of the antenna at the center
than it does at the base for the same resonant frequency.

The 70uH 75m bugcatcher coil occupies ~60 degrees when installed
at the base.

For the same resonant frequency and same length for the rest of
the antenna, a center-loaded coil would need about double that
reactance, making it about 1.4 times the size of the base-loaded
coil. So I would estimate that the center-loaded coil is occupying
~80 degrees of the antenna, much closer to a total of 90 degrees
than the base-loaded version.
--

73, Cecil http://www.qsl.net/w5dxp

3401. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 13:53:37 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <FRymYvUhhqIEFAaO@ifwtech.co.uk>
Source record: 62511

Cecil Moore wrote:
>Ian White GM3SEK wrote:
>> Precisely and specifically NOT that!
>
>:-) "My theory"? It's not my theory. Components behaving differently?
>No. Special ways according to my thinking? Of course not. There's
>nothing special. The "special magic thinking" is yours in thinking
>that standing wave current is the same as traveling wave current.
>
>> If you cannot see that statement as a fundamental principle of
>>scientific logic, then I have run out of ways to tell you.
>
>I see your statement for exactly what it is, Ian, full of inuendo

Let us repeat the statement, then:
>>The human observer sees a larger picture of the whole antenna, and can
choose many different ways to theorize about it. But a theory cannot
be correct if it requires that components behave in different, special
ways according to the way a person happens to be thinking about it at
the time.<<

That statement was not innuendo at all. It means nothing more than what
it literally says.

It applies to any and every observer who attempts to construct a theory
about something. Everybody is included; but nobody is exempt.

>and ignorance of the nature of standing wave current.
>
>Have you no clue what func(kx)*func(wt) really means?
>
>>> It is not my theory. It is the distributed network
>>> model which you apparently reject.
>> No, I reject your incorrect applications.
>
>You reject the distributed network analysis because you are
>completely technically ignorant of the nature of standing
>wave current.

That is a close to perfect mirror-image of my views on the positions you
take.

The difference is that my views join up with the rest of human knowledge
about antennas and circuit behaviour.

Yours don't. They fail that crucial test.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3402. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 14:31:13 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <RiyUf.20789$bn3.1229@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62512

Cecil,

Well, I guess it's back to the math books for me. I mistakenly thought that currents described by cos(kz-wt) and cos(kz).cos(wt) would be considered "instantaneous" currents. If they're really RMS, well . . .

I am curious about one thing, however. It would seem that all of this "averaging", "RMS", and "net" is a bit inconsistent with digging into a distributed network problem, which you insist is the only valid description. Everything can vary in time and space in a distributed network. Certainly these consolidating functions are useful for a general overview, but how can you learn anything about the details of a complex system by averaging and netting?

73,
Gene
W4SZ

Cecil Moore wrote:

>
> Give us a break, Tom. Of course, we are *NOT* and never have been
> talking instantaneous currents. All currents ever discussed concerning
> this subject have been RMS currents. That's just your instantaneous
> strawman. Long term charge accumulation is averaged over many cycles.
> There is simply none of that because the traveling waves are not storing
> any net charge inside the coil. How can you get so desperate as to play
> such silly games?
>
> My statement obviously meant: One amp of RMS forward current is flowing
> into the coil and one amp of RMS forward current is flowing out of the
> coil. Average charge is balanced.
>
> Even though the standing wave current is different at each end of the
> coil, the average charge into and out of the coil is still balanced.

3403. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 14:49:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <_zyUf.62436$dW3.25827@newssvr21.news.prodigy.com>
Source record: 62513

Ian White GM3SEK wrote:
> That statement was not innuendo at all. It means nothing more than what
> it literally says.
>
> It applies to any and every observer who attempts to construct a theory
> about something. Everybody is included; but nobody is exempt.

It means the lumped-circuit model works where the distributed-
network model fails. That is false. It is just the opposite.
the distributed-network model works where the lumped-circuit
model fails.

> The difference is that my views join up with the rest of human knowledge
> about antennas and circuit behaviour.

Only up to where the coils are 15 degrees long. Then the distributed
network model must be engaged to avoid blunders exactly like you
and others are making.

> Yours don't. They fail that crucial test.

Distributed network analysis fails the test??? Please provide
an example. The IEEE would probably publish a paper on such.
--
73, Cecil http://www.qsl.net/w5dxp

3404. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 14:53:03 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <jDyUf.62439$dW3.32272@newssvr21.news.prodigy.com>
Source record: 62514

Gene Fuller wrote:
> ... how can you learn anything about the details of a
> complex system by averaging and netting?

Because the conservation of energy principle is about
averaging and netting. Because steady-state analysis
is about averaging and netting. Because engineers
have 200 years of averaging and netting behind us
to prove that it works. When you try to track an
individual electron's velocity and position, guess
what happens?
--
73, Cecil http://www.qsl.net/w5dxp

3405. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 15:20:31 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143127231.412837.180270@t31g2000cwb.googlegroups.com>
Source record: 62516

Cecil, quit trying to pedal that bullshit. The currents at the two ends of the coil are NOT the same if they are different phases. It is the phase difference that lets you establish different standing wave currents at the two ends, when there's a travelling wave in each direction. So if the phase is different, then clearly there is net current going into the coil half the cycle, and net current coming out of the coil half the cycle.

Go ahead and do it with your travelling wave and phasors. It will work just as well as instantaneous currents. You will find a net current into the coil at some phase. Clearly the phasor notation is just a simplification of instantaneous currents for the case of sinusoidal excitation, and the answers darned well better be the same, or you better throw out your phasor notation.

OF COURSE the AVERAGE charge in and out is balanced! If it weren't, then you have a DC current with nowhere to go. This is a linear system we're modelling here, with no way to convert a sinewave to DC.

So tell us what net AC current into a component represents, and we'll just about be there.

3406. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 15:36:46 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143128206.180072.119050@i39g2000cwa.googlegroups.com>
Source record: 62517

No, Cecil, I did not try to change the meaning by trimming. I was simply pointing out a basic flaw in your whole development. You use the differing phase to establish that a travelling wave in each direction results in a difference in the standing wave current at each end, but then you try to use amplitude only to show no net current into the coil. Now use the SAME phase difference you used to develop the standing wave, and use it to determine the net AC current into the coil, AT SOME PHASE. Now use the same phase difference in the other direction to see that it also results in a net AC current AT SOME PHASE. AND for the case where there is a standing-wave current difference between the two ends of the coil, the net coil current is EXACTLY as predicted by the vector sum of the two travelling wave net currents.

Now you decide. Can I do phasor math? Do you need a specific example with numbers, or can YOU work that out yourself? Suggest you use the example from your previous posting. If that causes any difficulty, try it with 180 degrees phase shift through the component. I've done it, and it keeps giving me precisely the same answer as a full cycle of instantaneous currents.

3407. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 15:44:26 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <9uf5221s02so80rn0pssm94jtrfn79pg1l@4ax.com>
Source record: 62518

On 22 Mar 2006 17:40:02 -0800, w8ji@akorn.net wrote:

>I've been modeling V beams off and on for a few years now, and never
>can seem to get one that has useful gain.
>
>Has anyone seen a successful model anyplace of a two or three wave V
>with good gain??

Tom,

Some questions.

What is "good" gain?

What frequency?

How high?

Try this at 10 MHz. Dimensions in feet.

End 1 End 2

X Y Z X Y Z

W1 0.0 0.0 100.0 245.0 -114.2 100.0
W2 0.0 0.0 100.0 245.0 114.2 100.0

3408. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 16:12:54 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <mOzUf.1$t06.0@fe12.lga>
Source record: 62519

<w8ji@akorn.net> wrote in message >
> Let's focus on one thing at a time.
>
> You claim a bug cather coil has "an electrical length at 4MHz of ~60
> degrees". That concept is easily proven false, just like the claim a
> short loaded antenna is "90-degree resonant". Both can be shown to be
> nonsense pictures of what is happening.
>
> Assume I have a 30 degree long antenna. If the loading inductor is 60
> electrical degrees long, I could move it anyplace in that antenna and
> have a 90 degree long antenna.
>
> We all know that won't happen, so what is it you are really trying to
> say?
>
> 73 Tom
>

OK lets get me some educating here.
I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has 90 electrical degrees.
Is that right or wrong?

The current distrubution on said (full size) vertical is one quarter of the wave of 360 deg. which would make it 90 degrees. Max current is at the base and then diminishes towards the tip in the cosine function down to zero. Voltage distribution is just opposite, min at the base, feed point and max at the tip. EZNEC modeling shows that to be the case too.
Is that right or wrong?

If we stick them end to end and turn horizontal, we get dipole, which then would be 180 deg. "long" or "180 degrees resonant".
If not, what is the right way?

If I insert the coil, say about 2/3 up (at 5 ft. from the bottom) the shortened vertical, I make the coil size, (inductance, phys. dimensions) such that my vertical will shrink in size to 8 ft tall and will resonate at 7.87 MHz.
I learned from the good antenna books that this is still 90 electrical "resonant" degrees.
Maximum of current is at the feed point, minimum or zero at the tip.

If you stick those verticals (resonant) end to end and horizontal, you get shortened dipole, with current distribution equal to 180 degrees or half wave. Max current at the feed point, minima or zero at the tips. (RESONANT radiator)

How many electrical degrees would that make? How do you arrive at that?
Why is this a nonsense?

Can we describe "pieces" or segments of the radiator as having proportional amount of degrees corresponding to their physical length, when excited with particular frequency?

If I can be enlightened about this, we can go then to the next step.

Answers, corrections please.

Yuri, K3BU

3409. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 16:29:00 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143131340.406500.305500@g10g2000cwb.googlegroups.com>
Source record: 62520

With reverse bias, the PIN diode looks like a capacitance. Resonate
that capacitance with a parallel inductor, and you'll do more for
isolation than you will by increasing the reverse bias from 5V to 40V.
I assume you're not dealing with signals that are several volts in
amplitude...

3410. This is the one I was referring to.....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 16:58:06 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1225ksv6su9hlf1@corp.supernews.com>
Source record: 62521

http://www.rys.nl.wfl.htm

How do I build this thing, I can't find schematics
anywhere.....Butch KF5DE

3411. Lets try this one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:05:07 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1225la45rqjthe5@corp.supernews.com>
Source record: 62522

http://rys.nl/wfl.html

this oughta wurk

3412. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:11:22 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <aLydnX1wN8zASL_ZRVn-jA@adelphia.com>
Source record: 62523

w8ji@akorn.net wrote:

> A two-terminal network that transforms impedance, now there's a
> concept!

(My opinion follows, please correct me. Dang, I should put that in my sig.)

In reality, there is no such thing as a two terminal network, unless one of those terminals is grounded. For all other cases, there is an unavoidable implied ground terminal that covers all the stray capacitance of the device.

So the bug catcher coil is recognized as a 3 terminal device, with ground being the third terminal. It can be modeled as a pi, T or transmission line structure, as long as you want to understand what to quantify it at only one frequency (or a narrow band), and the choice is arbitrary. If you are concerned with modeling a large frequency range (that goes well past the first self resonance), one of those models (or a more complicated one) will be superior.

3413. Re: Current through coils - BFD

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:15:37 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <dmk522djlnt9vh4472gpc4kbl8gl3lj7a1@4ax.com>
Source record: 62524

On Thu, 23 Mar 2006 09:57:04 GMT, "David J Windisch"
<davidjw@cinci.rr.com> wrote:

>"BFD" ida "Before Final Decision", n'est ce pas?
>
>"Richard Clark" <kb7qhc@comcast.net> wrote in message
>news:mu7322hcinluakhvtib9t6l9a9104de8jj@4ax.com...
>>
>> Well, let's start with Yuri's emphasized and cogent assertion:
>> "The current in a typical loading coil in the shortened antennas
>BIGSNIP of a howler
>

Hi David,

I would have thought so on its completion. However, the problem of
the poor specification has given rise to the prospects that Yuri's
vertical was never resonated by the loading coil at all. I find it
strange that I had to wade through a ton of verbal chatter to glean
minutiae such as:

"(with hat) and reresonating"

where the coil had been moved throughout the length of the radiator
and the system "reresonated" back in the shack. The long and short of
this was I struggled to make the antenna resonant in the 40M band, and
achieved it with yet another shortfall of specification. The coil
itself was barely mentioned except for its diameter.

Sure, a picture was provided, but those meters that I used to scale it
look very much like 3ï¿½" panel mounts and are as wide as the coil. By
using them as a benchmark, I reckoned the coil for being 20" long at 4
turns per inch. Later, when I accepted the "reported" coil diameter
of 2ï¿½", I forgot to shorten the coil to 10" and increase the pitch to
6tpi. Needless to say results need to be revisited, but the only
change will be on the wrong side of the decimal point for those
"debating" the matter.

When thread lengths get to be 500+ the participation has long ceased
to be about any technical content.

Like those who argue that POS EZNEC reports erroneous results when
they use it wrong; this is basically the story of the man who went to
the doctor to complain:
"It hurts when I do this!"
Doctor:
"Stop doing that."

73's
Richard Clark, KB7QHC

3414. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:36:27 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ldm5225diriqcsa2ecapsbhu7e39dp18si@4ax.com>
Source record: 62525

On Thu, 23 Mar 2006 11:12:54 -0500, "Yuri Blanarovich"
<K3BU@optonline.net> wrote:

>Can we describe "pieces" or segments of the radiator as having proportional
>amount of degrees corresponding to their physical length, when excited with
>particular frequency?
>
>If I can be enlightened about this, we can go then to the next step.

Hi Yuri,

At your page you assert:
> "The current in a typical loading coil in the shortened antennas
> drops across the coil roughly corresponding to the segment of the
> radiator it replaces. "
so I must presume this is part and parcel to your question above and
the coil is part of that proportionality where all segments combine to
90ï¿½.

On the other hand, Cecil is only willing to allow:
On Wed, 22 Mar 2006 23:48:11 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>+/- 50% accuracy.

Now, given that you might describe a radiator whose vertical sections
add to 30ï¿½, then it follows from your page's assertion that the coil
must represent 60ï¿½. Cecil, again, would give pause and restrict that
to some value between 30ï¿½ and (oddly enough) 90ï¿½. The total structure
then represents a 60ï¿½ to 120ï¿½ electrically high verticle.

The long and short of this (a pun) is that Cecil has argued you into a
rhetorical corner where it is highly unlikely that the whole shebang
is ever 90ï¿½ long - by parts that is. Or as a Hail Mary argument, you
could simply assert that the range encompasses the right value for
your assertion above, but then anyone could use the same logic to say
all loaded antennas are only 70ï¿½ electrically tall and another could
boast 110ï¿½ and you couldn't dispute them. (Yes, you could, of
course, this is a newsgroup afterall.)

Perhaps you would like to argue this for yourself (I don't pay much
attention to Cecil anyway as this +/- 50% slop factor accounts for).

73's
Richard Clark, KB7QHC

3415. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:45:40 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <89BUf.41342$_S7.23762@newssvr14.news.prodigy.com>
Source record: 62377

John Popelish wrote:
> w8ji@akorn.net wrote:
>
>> A two-terminal network that transforms impedance, now there's a
>> concept!
>
>
> (My opinion follows, please correct me. Dang, I should put that in my
> sig.)
>
> In reality, there is no such thing as a two terminal network, unless one
> of those terminals is grounded. For all other cases, there is an
> unavoidable implied ground terminal that covers all the stray
> capacitance of the device.
>
> So the bug catcher coil is recognized as a 3 terminal device, with
> ground being the third terminal. It can be modeled as a pi, T or
> transmission line structure, as long as you want to understand what to
> quantify it at only one frequency (or a narrow band), and the choice is
> arbitrary. If you are concerned with modeling a large frequency range
> (that goes well past the first self resonance), one of those models (or
> a more complicated one) will be superior.

You fellows lack imagination. As long as you're trying to morph a coil
into a transmission line, why not just imagine it as a shorted stub?
There's more than one way to make an inductive reactance.
73,
Tom Donaly, KA6RUH

3416. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:48:27 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <9oidndktkuKTQ7_ZnZ2dnUVZ_vudnZ2d@adelphia.com>
Source record: 62376

Roy Lewallen wrote:
> John Popelish wrote:
>> Roy Lewallen wrote:
>> . . .
>>> In
>>> my modification to Cecil's EZNEC file I showed how the coil behaves
>>> the same with no antenna at all, just a lumped load impedance. As
>>> long as the load impedance and external C stay the same, the coil
>>> behavior stays the same.
>>
>>
>> Excellent. As long as there is external C, the coil acts in a non
>> lumped way, regardless of whether its current passes to an antenna or
>> a dummy load. This is the same result you would get with any
>> transmission line, also, except that the C is inside the line, instead
>> of all around it.
>
>
> No, the coil is acting in a lumped way whether the C is there or not. A
> combination of lumped L and lumped C mimics a transmission line over a
> limited range.

And a transmission line mimics a lumped LC network, over a limited range.

We are still talking about an antenna loading coil, aren't we? This is a coil made with a length of conductor that is a significant fraction of a wavelength at the frequency of interest, and with low coupling between the most separated turns. And with non zero capacitance of every inch of that length to the rest of the universe and to neighboring inches of the coil. To say it is acting in a lumped way I can only assume that you mean a lumped model of it can be produced that predicts its behavior with an acceptable approximation at a given frequency. Sure, at a single frequency, lots of different models can be useful. I am trying to get inside the black box and understand how the device acts as it acts, not discover what simplified models might approximate it under specific conditions.

> But neither the L nor C is acting as more or less than a
> lumped component. All the "transmission line" properties I listed in my
> last posting for the LC circuit can readily be calculated by considering
> L and C to be purely lumped components.

What can be calculated and what is going on are two different subjects. Perhaps this difference in our interests is the basis of our contention.

>> Its propagation is a lot slower than a normal transmission line based
>> on straight conductors, isn't it?
>
>
> There's more L per unit length than on an equal length line made with
> straight wire, so yes the propagation speed is slower. But there's
> nothing magic about that. A lumped LC circuit can be found to have
> exactly the same delay and other characteristics of a transmission line,
> and it can do it in zero length.

Then we agree on this. Perhaps the words "slow wave transmission
line" have been copyrighted to mean a specific mechanism of slow wave
propagation, not all mechanisms that propagate significantly slower
than straight wire transmission lines do. If so, I missed that.

...
> A slow wave structure is a type of waveguide in which the fields inside
> propagate relatively slowly. Ramo and Whinnery is a good reference, and
> I'm sure I can find others if you're interested.

I'll do a bit of looking. Thanks.

>>> The propagation velocity of the equivalent transmission line is
>>> omega/sqrt(LC), so the speed depends equally on the series L and the
>>> shunt C.
>>
>> Per unit of length in the direction of propagation. Helical coils
>> have a lot of L in the direction of propagation, compared to straight
>> wire lines, don't they?
>
>
> Yes indeed, as discussed above. And as I said above, you can get plenty
> of delay from a lumped L and C of arbitrarily small physical size.

You keep going back to how lumped components can mimic actual
distributed ones (over a narrow frequency range). I get it. I have
no argument with it. But why do you keep bringing it up? We are
talking about a case that is at least a border line distributed device
case. I am not interested in how it can be modeled approximately by
lumped, ideal components. I am interested in understanding what is
actually going on inside the distributed device.

>> . . .

>> The question, I think is whether large, air core coils act like a
>> single inductance (with some stray capacitance) that has essentially
>> the same current throughout, or is a series of inductances with
>> distributed stray capacitance) that is capable of having different
>> current at different points, a la a transmission line. And the answer
>> must be that it depends on the conditions. At some frequencies, it is
>> indistinguishable from a lumped inductance, but at other frequencies,
>> it is clearly distinguishable. You have to be aware of the boundary
>> case.

>
>
> Yes. It's a continuum, going from one extreme to the other. As Ian has
> pointed out several times, any theory should be able to transition from
> one to the other.

Or start with a less simplified theory that covers all cases, so you
don't have to decide when to switch tools.

> The example Cecil posted on his web page was one for
> which the L could be modeled completely adequately as a lumped L, at
> least so far as its current input and output properties were concerned.

(if you add to that model, the appropriate lumped capacitors at the
appropriate places)

> Being a significant fraction of the antenna's total length, it of course
> does a substantial amount of radiating which a lumped model does not.
Another reason to avoid that model, unless you are just looking for
the least amount of math to get an approximation. But computation has
gotten very cheap.

...
>> But a continuous coil is not a series of discrete lumped inductances
>> with discrete capacitances between them to ground, but a continuous
>> thing. In that regard, it bears a lot of similarity to a transmission
>> line. But it has flux coupling between nearby turns, so it also has
>> inductive properties different from a simple transmission line. Which
>> effect dominates depends on frequency.
>
>
> Yes, that's correct. But if it's short in terms of wavelength, a more
> elaborate model than a single lumped inductance won't provide any
> different results.
>
>>
>>> The coil in the EZNEC model on Cecil's web page acts just like we'd
>>> expect an inductor to act.
>>
>>
>> A perfect point sized inductor? I don't think so.
>
>
> Except for the radiation, yes. In what ways do you see it differing?

A lumped inductor has no stray capacitance. Those also have to be
added to the model, before the effect would mimic the real coil
(neglecting radiation).

>>> With ground present constituting a C, the circuit acts like an L
>>> network made of lumped L and C which behaves similarly to a
>>> transmission line. With ground, hence external C, absent, it acts

>>> like a lumped L. (There are actually some minor differences, due to
>>> imperfect coupling between turns and to coupling to the finite sized
>>> external circuit.) The combination of L and C "act like" a
>>> transmission line, just like any lumped L and C. And it doesn't care
>>> whether the load is a whip or just lumped components.
>>
>>
>> I agree with the last sentence. The ones before that seem self
>> contradictory. First you say it acts just like an inductor, then you
>> say it acts like a transmission line. These things (in the ideal
>> case) act very differently.
>
>
> Let me try again. The combination of L and the C to ground act like a
> transmission line, just like a lumped LC acts like a transmission line.
> With the ground removed, there's nearly no C, so there's very little
> transmission-line like qualities. Of course you could correctly argue
> that there's still a tiny amount of C to somewhere and so you could
> still model the circuit as a transmission line. The equivalent
> transmission line would have very high impedance and a velocity factor
> very near one. Such a transmission line is difficult to distinguish from
> a plain inductor.

But in the real world, the capacitance is always there. It varies,
depending on the location of the coil, but it never approaches zero.

3417. Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:50:32 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <UdBUf.15$t06.3@fe12.lga>
Source record: 62378

OK, I have been accused of being wrong, claiming that current across the antenna loading coil is or can be different at its ends.
I and "my camp" say that we are seeing somewhere 40 to 60 % less current at the top of the coil, than at the bottom, in other words, significant or noticeable drop.
W8JI and "his camp" are claiming it can't be so, current through the coil has to be the same or almost the same, with no significant drop across the loading coil.

Let's start the fresh thread and trace step by step where I went wrong.

Just reminder that we are talking typical situations, as for example real 40 m (or 80 m) mobile whip with loading coil about 2/3 up the radiator. We are talking about resonant electrical quarter wave monopole. We are talking about standing wave RF current that can be measured with RF ammeter and is shown and plotted in modeling programs like EZNEC.

Here we go:

<w8ji@akorn.net> wrote in message >
> Let's focus on one thing at a time.
>
> You claim a bug cather coil has "an electrical length at 4MHz of ~60
> degrees". That concept is easily proven false, just like the claim a
> short loaded antenna is "90-degree resonant". Both can be shown to be
> nonsense pictures of what is happening.
>
> Assume I have a 30 degree long antenna. If the loading inductor is 60
> electrical degrees long, I could move it anyplace in that antenna and
> have a 90 degree long antenna.
>
> We all know that won't happen, so what is it you are really trying to
> say?
>
> 73 Tom
>

OK lets get me some educating here.
I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has 90 electrical degrees.
Is that right or wrong?

The current distrubution on said (full size) vertical is one quarter of the wave of 360 deg. which would make it 90 degrees. Max current is at the base and then diminishes towards the tip in the cosine function down to zero.
Voltage distribution is just opposite, min at the base, feed point and max

at the tip. EZNEC modeling shows that to be the case too.
Is that right or wrong?

If we stick them end to end and turn horizontal, we get dipole, which then would be 180 deg. "long" or "180 degrees resonant".
If not, what is the right way?

If I insert the coil, say about 2/3 up (at 5 ft. from the bottom) the shortened vertical, I make the coil size, (inductance, phys. dimensions) such that my vertical will shrink in size to 8 ft tall and will resonate at 7.87 MHz.
I learned from the good antenna books that this is still 90 electrical "resonant" degrees.
Maximum of current is at the feed point, minimum or zero at the tip.

If you stick those verticals (resonant) end to end and horizontal, you get shortened dipole, with current distribution equal to 180 degrees or half wave. Max current at the feed point, minima or zero at the tips. (RESONANT radiator)

How many electrical degrees would that make? How do you arrive at that?
Why is this a nonsense?

Can we describe "pieces" or segments of the radiator as having proportional amount of degrees corresponding to their physical length, when excited with particular frequency?

If I can be enlightened about this, we can go then to the next step.

Answers, corrections please.

Yuri, K3BU

3418. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 17:58:29 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <AYmdncfUo431fb_ZRVn-uw@adelphia.com>
Source record: 62379

Roy Lewallen wrote:
> John Popelish wrote:

> No, you're misinterpreting what you're seeing. Imagine an LC L network
> with theoretically lumped series L and shunt C.

Okay, I am imagining an idealized, network made of perfect, impossible
components that is simple to analyze. Got it.

> If you look at the
> currents at the input and output of the perfect inductor, you'll find
> that they're exactly the same.

Right.

> If, however, you look at the currents in
> and out of the *network* you'll see that they're different, because of
> current going to ground through the C.

Got it. Same for any pi, T, or more complicated LC network.

> And, as I said before, you can
> even pretend it's a transmission line and measure forward and reverse
> traveling waves and a standing wave ratio.

Yes. Under some specific conditions.

> But with zero length, there
> can be no standing waves inside the inductor.

Yes. There are no waves in a single ideal lumped component, so there
can be no waves inside any of them, only a phase shift between the
voltage across them and the current through them. But a network made
of them can mimic lots of processes that internally involve
propagation of waves, including the phase shift between voltages
across the terminals and current into the terminals, and even group
delay, but only over narrow frequency range. It is a model with this
severe limitation.

> Yet the terminal
> characteristics of the network are the same as a transmission line. You
> don't need to imagine standing waves residing inside the inductor in the
> LC circuit, and you don't need to imagine them inside the inductor in
> Cecil's model, either.
(snip)

Whether or not we need to imagine them to picture what is happening at
the terminals is not the question at hand. The question in my mind is

what is the actual mechanism, inside the device in question that is causing the effects we see at the terminals. I am not interested in the full range of models that predict the effect, but in the actual cause. I accept that my motivation is not necessarily the same as yours.

3419. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:01:50 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HrednWsZRamsfL_ZnZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 62380

Cecil Moore wrote:
> John Popelish wrote:
>
>> Oh poo. At current nodes charge piles up and spreads out, on
>> alternating half cycles. For one half cycle, the pile is positive,
>> and for the next it is negative. This is a basic transmission line
>> concept. If transmission lines had no shunt capacitance, there would
>> be no place to put this charge. But there is, so it is no problem.
>> Whether the transmission line is coax, twin line or a slow wave helix
>> makes little difference. The process is similar. Isn't this what you
>> have been arguing?
>
>
> If the forward traveling wave is equal in magnitude at both ends of the
> coil, there is no net storage of energy due to the forward traveling wave.

Over a complete cycle, I agree, Within a single cycle, standing waves
slosh charge back and forth between adjacent current nodes, piling up
positive charge at one and negative charge at the next. This is the
reason that the voltage peaks at the tip of a quarter wave antenna.
It is a current node (because current has no place to go from there),
so charge piles up and produces voltage. But over a complete cycle,
the net charge movement is zero (the positive piles are he same size
as the negative piles).

> If the reflected traveling wave is equal in magnitude at both ends of the
> coil, there is no net storage of energy due to the reflected traveling
> wave.

Same thing I said last paragraph.

> Superposing those two waves still results in no net storage of energy.
> Sorry, got to hit the road.

I'll put this on hold till you get back. Have fun.

3420. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:02:43 UTC
From: Yuri Blanarovich <K3BU@optonline.net>
Message-ID: <kpBUf.16$t06.10@fe12.lga>
Source record: 62382

Richard and everybody,

Let's try again from scratch, fresh, I will try to go step by step, so there are no ambiguities, twists and turns to each own's la-la land.

Cecil is on well deserved break, so I am am on my own, stuck on whatever it might be.

I will not continue, unless there is an agreement at each point, I go sloooow, for the benefit of mine and others who duntgetit.
The "camp" think is to signify two groups claiming the different behavior of the current in the antenna loading coil. No intent to punish anyone.

Please go to the new thread that I started.
"Current across the antenna loading coil - from scratch"
If needed I will post pictures on my web site, unless there is a way to do it here.

Thank you!

Yuri, K3BU.us

3421. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:04:38 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HrednWoZRalEfL_ZnZ2dnUVZ_tidnZ2d@adelphia.com>
Source record: 62381

Cecil Moore wrote:

>> But its propagation speed will be slower than it would be if the wire
>> were straight. don't know if that qualifies it for a "slow wave" line
>> or not.
>
> A velocity factor of 0.0175 for a 75m bugcatcher seems to qualify.

I guess this depends on the official definition if "slow wave". It
may already be taken for something specific and limited. It may be
something like high frequency has come to mean an arbitrary frequency
band. This group is the first place I have come across the term.

3422. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:09:19 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <n_WdnVH3vNZvf7_ZnZ2dnUVZ_smdnZ2d@adelphia.com>
Source record: 62383

Cecil Moore wrote:
> John Popelish wrote:
>
>> If there is a standing wave on a wire, and you have a tiny current
>> transformer sensor you can slide along the wire, you can measure the
>> instantaneous current (or the RMS) at any point along the wire. If
>> the sensor sits at a single point and sees an AC current, you have no
>> way, from this one measurement, if this current is the result of a
>> standing wave (two oppositely traveling equal waves adding), or a
>> single traveling wave, or any combination of traveling waves of
>> different amplitudes. You know only the net current at that point.
>
>
> But if one it smart enough to slide the sensor up and down the wire
> and note the phase is fixed and unchanging, one knows he is dealing
> with a standing wave.

Another point, entirely. My point is that current has a point
definition, and standing wave current is certainly indistinguishable
from traveling wave current, at a point. Current is current.

Patterns of current over length is another subject. But you keep
saying that there is something different about current in a standing
wave. There isn't. It is the pattern of current distribution over
time and distance along a conductor that is different with a standing
wave.

It is a nit, but it is snagging other people in the discussion, too,
so I thought it would help to clear it up.

3423. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:22:01 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <rsmdnVsgpZxxeL_ZnZ2dnUVZ_tCdnZ2d@adelphia.com>
Source record: 62384

Cecil Moore wrote:
(snip paragraphs where we paraphrase each other in agreement)

> Yes, if a current node exists inside a coil, the standing wave currents
> are flowing into the coil at the same time from both ends and 1/2 cycle
> later they are both flowing out of the coil at the same time. Wonder
> how a lumped-circuit inductance handles that? :-)

Of course, it can't. But a lumped LC network made of perfect, ideal components can be constructed that mimic the terminal conditions of the coil in question to any degree of accuracy desired. The caveat is that you may not explore much of a frequency range if you expect this idealized model to remain a good mimic. At another frequency, you have to rebuild it to copy the effects at that frequency. The broader the frequency range of such a model, the more complexity it must have.

A model that works over a wide range of frequency (including through multiples of the self resonant frequency) would be simplest if it modeled the propagation effects inside the coil, explicitly (with a distributed concept), rather than as an effect of a large network of ideal Ls and Cs.

I am beginning to think that, for many, this is a discussion, not about actual causes of effects, but of preferred models.

And preference can be very personal.

I apologize if I am getting too philosophical, but I just began re-reading "Zen and the Art of Motorcycle Maintenance", and it may be having this effect on me. But then, getting involved in this discussion may be what made me think of that book.

3424. Re: Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:32:14 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ljp5229oi5q756j15nr6drijumdrrfsecf@4ax.com>
Source record: 62385

On Thu, 23 Mar 2006 12:50:32 -0500, "Yuri Blanarovich"
<K3BU@optonline.net> wrote:

>Let's start the fresh thread and trace step by step where I went wrong.

Hi Yuri,

Are you then abandoning your web page?

You know, it would seem to be better effort to stick with the
demonstrables there and to make sense of them, than to wander the
intellectual landscape of "theory."

>OK lets get me some educating here.
>I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has
>90 electrical degrees.
>Is that right or wrong?

If you cannot define your limits of error, then Cecil is bound to do
it for you and plug in +/- 50% to make any assertion laughable, such
as:

>Can we describe "pieces" or segments of the radiator as having proportional
>amount of degrees corresponding to their physical length, when excited with
>particular frequency?

You've left too many things out to agree to more than a rather
insubstantial maybe. If that's sufficient, then there's really no
need to go any further, is there?

73's
Richard Clark, KB7QHC

3425. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:33:53 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <KWOVZ0YRouIEFA63@ifwtech.co.uk>
Source record: 62387

Cecil Moore wrote:
>Ian White GM3SEK wrote:

- and yet again Cecil snips the statement he is replying to. For the second time in a day, I have to put back what I actually said:

>>The human observer sees a larger picture of the whole antenna, and can choose many different ways to theorize about it. But a theory cannot be correct if it requires that components behave in different, special ways according to the way a person happens to be thinking about it at the time.

If you cannot see that statement as a fundamental principle of scientific logic, then I have run out of ways to tell you.<<

>> That statement was not innuendo at all. It means nothing more than
>>what it literally says.
>> It applies to any and every observer who attempts to construct a
>>theory about something. Everybody is included; but nobody is exempt.
>
>It means the lumped-circuit model works where the distributed-
>network model fails. That is false. It is just the opposite.
>the distributed-network model works where the lumped-circuit
>model fails.
>
No...

>> The difference is that my views join up with the rest of human
>>knowledge about antennas and circuit behaviour.
>
>Only up to where the coils are 15 degrees long. Then the distributed
>network model must be engaged to avoid blunders exactly like you
>and others are making.
>

You are missing the point still.

>> Yours don't. They fail that crucial test.
>
>Distributed network analysis fails the test??? Please provide
>an example. The IEEE would probably publish a paper on such.

Every time I say that you are not applying established concepts and techniques correctly, you twist it to make me say I am denying the validity of the concepts themselves.

For the very last time: the basic concepts are valid; but the way that you are applying them is not. Can you really and truly not see the difference?

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3426. Re: This is the one I was referring to.....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:35:39 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <rhq522dipap7c3a4b4ujejkutpp37plg36@4ax.com>
Source record: 62386

On Thu, 23 Mar 2006 10:58:06 -0600, Butch Magee <lynyrd@cableone.net>
wrote:

>http://www.rys.nl.wfl.htm
>
>
>How do I build this thing, I can't find schematics
>anywhere..............Butch KF5DE

Hi Butch,

It would be infinitely easier if you visited the web page first, and
then COPY the url and PASTE it in your posting.

73's
Richard Clark, KB7QHC

3427. Re: This is the one I was referring to.....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 18:54:27 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <5g7bf3-7nu.ln1@p400bob.personal.cox.net>
Source record: 62388

Hi Butch

The cebik URL I posted gives you dimensions and values for a full length one.

I'd suggest that since it is such a wide band device terminated in a resistor, choose some arbitary value like 600 ohms, feed it via a balun transformer and see what happens! Take the manufacturers description and photo to work out the wire lengths.

What I am mainly getting at is being such a wideband antenna with resistive loading, the dimensions wont be critical.

Cheers Bob VK2YQA

Butch Magee wrote:
>
>
> http://www.rys.nl.wfl.htm
>
>
> How do I build this thing, I can't find schematics
> anywhere.....Butch KF5DE

3428. Re: Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 19:35:26 UTC
From: w8ji@akorn.net
Message-ID: <1143142526.021154.67050@e56g2000cwe.googlegroups.com>
Source record: 62389

This thread belongs back in the original place, so it flows in context.

Yuri Blanarovich wrote:
> OK, I have been accused of being wrong, claiming that current across the
> antenna loading coil is or can be different at its ends.

No one said that.

> I and "my camp" say that we are seeing somewhere 40 to 60 % less current at
> the top of the coil, than at the bottom, in other words, significant or
> noticeable drop.

Quit trying to make it a gang war. It is antenna theory, not a bar
room brawl with a bunch of drunks.

> W8JI and "his camp" are claiming it can't be so, current through the coil
> has to be the same or almost the same, with no significant drop across the
> loading coil.

I have no camp. You are lifting what I say out of context and deleting
important things.

What I say, over and over again, is I can build an inductor in a short
mobile antenna that has essentially equal currents at each end. A
compact loading coil of good design has this type of performance.

The current taper across the inductor is not tied to the number of
"electrical degrees" the inductor "replaces". It is tied to the
distributed capaciatnce of the coil to the outside world in comparison
to the termination impedance at the upper end of the coil.

> <w8ji@akorn.net> wrote in message >
> > Let's focus on one thing at a time.
> >
> > You claim a bug cather coil has "an electrical length at 4MHz of ~60
> > degrees". That concept is easily proven false, just like the claim a
> > short loaded antenna is "90-degree resonant". Both can be shown to be
> > nonsense pictures of what is happening.
> >
> > Assume I have a 30 degree long antenna. If the loading inductor is 60
> > electrical degrees long, I could move it anyplace in that antenna and
> > have a 90 degree long antenna.
> >
> > We all know that won't happen, so what is it you are really trying to
> > say?
>
> OK lets get me some educating here.

> I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has
> 90 electrical degrees.
> Is that right or wrong?

Right.

> The current distrubution on said (full size) vertical is one quarter of the
> wave of 360 deg. which would make it 90 degrees. Max current is at the base
> and then diminishes towards the tip in the cosine function down to zero.
> Voltage distribution is just opposite, min at the base, feed point and max
> at the tip. EZNEC modeling shows that to be the case too.
> Is that right or wrong?

Right. Although the distributed capacitance can change the shape.

> If we stick them end to end and turn horizontal, we get dipole, which then
> would be 180 deg. "long" or "180 degrees resonant".
> If not, what is the right way?

Right.

> If I insert the coil, say about 2/3 up (at 5 ft. from the bottom) the
> shortened vertical, I make the coil size, (inductance, phys. dimensions)
> such that my vertical will shrink in size to 8 ft tall and will resonate at
> 7.87 MHz.
> I learned from the good antenna books that this is still 90 electrical
> "resonant" degrees.
> Maximum of current is at the feed point, minimum or zero at the tip.

What "good book"? It would help to see the context.

None of my engineering books use electrical degrees except to describe
overall antenna height or length.

They might say "60 degree top loaded resonant radiator" but they don't
say "60 degree tall radiator 90 degree resonant".

There might be a correct context, but I can't think of one off hand. So
I need an example from a textbook.

> If you stick those verticals (resonant) end to end and horizontal, you get
> shortened dipole, with current distribution equal to 180 degrees or half
> wave. Max current at the feed point, minima or zero at the tips. (RESONANT
> radiator)

The current distribution would not be the same as a half wave, becuase
the antenna is not 1/2 wave long.

> Can we describe "pieces" or segments of the radiator as having proportional
> amount of degrees corresponding to their physical length, when excited with
> particular frequency?

Yes. It works fine for length. It does NOT work for loading inductors,
it does not work for short antennas which have anything form a uniform
distribution to triangular distribution, or any mix between including

curves of various slopes.

A 30 degree tall antenna with base loading simply has power factor correction at the base, provided the inductor is not a significant fraction of a wavelength long. It is a 30 degree base loaded radiator, not a 90 degree antenna. And the inductor is not 60 degrees long.

73 Tom

3429. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 19:37:50 UTC
From: w8ji@akorn.net
Message-ID: <1143142670.435886.58770@i40g2000cwc.googlegroups.com>
Source record: 62390

This thread belongs back in the original place, so it flows in context.

Yuri Blanarovich wrote:
> OK, I have been accused of being wrong, claiming that current across the
> antenna loading coil is or can be different at its ends.

No one said that.

> I and "my camp" say that we are seeing somewhere 40 to 60 % less current at
> the top of the coil, than at the bottom, in other words, significant or
> noticeable drop.

Quit trying to make it a gang war. It is antenna theory, not a bar
room brawl with a bunch of drunks.

> W8JI and "his camp" are claiming it can't be so, current through the coil
> has to be the same or almost the same, with no significant drop across the
> loading coil.

I have no camp. You are lifting what I say out of context and deleting
important things.

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mobile antenna that has essentially equal currents at each end. A
compact loading coil of good design has this type of performance.

The current taper across the inductor is not tied to the number of
"electrical degrees" the inductor "replaces". It is tied to the
distributed capaciatnce of the coil to the outside world in comparison
to the termination impedance at the upper end of the coil.

> <w8ji@akorn.net> wrote in message >
> > Let's focus on one thing at a time.
> >
> > You claim a bug cather coil has "an electrical length at 4MHz of ~60
> > degrees". That concept is easily proven false, just like the claim a
> > short loaded antenna is "90-degree resonant". Both can be shown to be
> > nonsense pictures of what is happening.
> >
> > Assume I have a 30 degree long antenna. If the loading inductor is 60
> > electrical degrees long, I could move it anyplace in that antenna and
> > have a 90 degree long antenna.
> >
> > We all know that won't happen, so what is it you are really trying to
> > say?
>
> OK lets get me some educating here.

> I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has
> 90 electrical degrees.
> Is that right or wrong?

Right.

> The current distrubution on said (full size) vertical is one quarter of the
> wave of 360 deg. which would make it 90 degrees. Max current is at the base
> and then diminishes towards the tip in the cosine function down to zero.
> Voltage distribution is just opposite, min at the base, feed point and max
> at the tip. EZNEC modeling shows that to be the case too.
> Is that right or wrong?

Right. Although the distributed capacitance can change the shape.

> If we stick them end to end and turn horizontal, we get dipole, which then
> would be 180 deg. "long" or "180 degrees resonant".
> If not, what is the right way?

Right.

> If I insert the coil, say about 2/3 up (at 5 ft. from the bottom) the
> shortened vertical, I make the coil size, (inductance, phys. dimensions)
> such that my vertical will shrink in size to 8 ft tall and will resonate at
> 7.87 MHz.
> I learned from the good antenna books that this is still 90 electrical
> "resonant" degrees.
> Maximum of current is at the feed point, minimum or zero at the tip.

What "good book"? It would help to see the context.

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overall antenna height or length.

They might say "60 degree top loaded resonant radiator" but they don't
say "60 degree tall radiator 90 degree resonant".

There might be a correct context, but I can't think of one off hand. So
I need an example from a textbook.

> If you stick those verticals (resonant) end to end and horizontal, you get
> shortened dipole, with current distribution equal to 180 degrees or half
> wave. Max current at the feed point, minima or zero at the tips. (RESONANT
> radiator)

The current distribution would not be the same as a half wave, becuase
the antenna is not 1/2 wave long.

> Can we describe "pieces" or segments of the radiator as having proportional
> amount of degrees corresponding to their physical length, when excited with
> particular frequency?

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it does not work for short antennas which have anything form a uniform
distribution to triangular distribution, or any mix between including

curves of various slopes.

A 30 degree tall antenna with base loading simply has power factor correction at the base, provided the inductor is not a significant fraction of a wavelength long. It is a 30 degree base loaded radiator, not a 90 degree antenna. And the inductor is not 60 degrees long.

73 Tom

3430. Re: Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 19:38:26 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143142706.647367.72460@v46g2000cwv.googlegroups.com>
Source record: 62391

Yuri wrote,

" I and "my camp" say that we are seeing somewhere 40 to 60 % less current at
the top of the coil, than at the bottom, in other words, significant or noticeable drop.
W8JI and "his camp" are claiming it can't be so, current through the coil
has to be the same or almost the same, with no significant drop across the
loading coil. "

I'm not sure who all you put in W8JI's "camp," but I'm absolutely sure that I've read recent postings by W8JI himself that affirm that there can be significant difference in current between the ends of the loading coil. What I DO see him posting is that if the difference is large, the antenna design is almost certainly suboptimal.

If you want to understand how a loading coil with zero capacitance to the outside world can actually work, I suggest you read the Joseph Boyer article from "Ham Radio" magazine some 28 years ago. Ian White gave a more complete reference to that article in one of his postings in the interminable thread. I'm always happy to ship out a copy of that article for the cost of postage.

Cheers,
Tom

3431. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 19:52:02 UTC
From: Doc <ltdoc@yahoo.com>
Message-ID: <1143143341_2021@sp6iad.superfeed.net>
Source record: 62392

Doc wrote:

...and yes, Elvira.
- 'Doc

3432. Re: Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 22:32:22 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <5pOdnWnjAutrvL7Z4p2dnA@comcast.com>
Source record: 62393

Yuri, you have neglected at least one important unit of measure: namely, the action integral of the 'active antenna' times the current [ampere*degrees].

For simplicity, assume a constant one ampere is flowing in a physical 15 degree antenna. The answer is 15 ampere*degrees. In a true 1/4 wavelength antenna the answer is 90 ampere*degrees. The shortened antenna is [=] a tuned 15 degree antenna NOT a 90 degree antenna!!

In a real shortened antenna, the base current may be assumed, to a first approximation, as constant from the base to the loading coil. If that portion of the antenna is 10 degrees, then 10 ampere*degrees is the action integral.

The current in the top section can be assumed linear from the value at the top of the coil to the tip where I=0. This is a triangle [or a sin function that is close to linear] that can solve to two possible values. The first is based on one ampere exiting the top of the coil and the solution is 1/2*1 ampere*5 degrees = 2.5 ampere degrees. The second is based on a sinusoidal distribution from the tip to the 5 degree point at the top of the coil where the current is 0.087 ampere. [The sin of 5 degrees is 0.087.] So, the action integral is 1/2*0.087 amperes*5 degrees = 0.218 ampere*degrees.

The practical application deals with the efficiency of the antenna. Is that tuned 15 degree long antenna a 12.5 ampere degree antenna; or, is it a 10.218 ampere degree antenna? [That's approximately a difference of 1 dB in antenna performance.]

The discussion here for the past three infinities is: What is happening inside the tuning coil? Is there a change in current amplitude? If so, please explain the physics. Is there no change in current amplitude? If so, please explain the physics.

The coil is physically less than one degree in length, but contains enough wire to be a significant portion of a wavelength. Interwinding capacitance and distributed inductance can make the coil look like a transmission line.

The flux density from each turn in an air core coil construction diverges as one progresses along the coil [the flux density at turn #2 is higher than at turn #60 for example]. Restated, there is a leakage inductance along the coil. The flux density has a propagation time in free space of approximately 0.5E-9 seconds. Is this significant? [I don't think so]

In the tuning coil there exists an interwinding capacitance and a capacitance to "structure" [whatever that is].

In 1958, my college days, we were instructed to ignore the coil and solve the antenna as two separate sections with an infinitesimal gap at the junction. I never liked that model then and I don't like it today! [It still allows two solutions][We were instructed that the current is constant].

So, we have two well entrenched positions: the current does not change in the coil, and, the current changes in the coil. Like World War I, it is trench warfare with much bloodshed [reputation] on both sides.

Due to leakage inductance, I suspect that the current does change within the air core coil but the change is much less than that implied by the simple sin wave distribution [sin 5 degrees] used above.

Below the coil the H field dominates. Above the coil the E field dominates. The transition from E to H occurs across [within] the coil. That leads me to conclude that there is a change of current within the coil.

In any event, the 15 degree antenna is still a 15 degree antenna! The question is: what about that 1 dB difference in the modeling analysis?

This simple engineer is still unconcerned about one dB difference and it's impact on antenna gain. If the science side of this discussion can't agree, then I'll simply continue to operate mobile and not worry if my signal is one dB stronger or weaker at the receiving end of the path!! It is what it is!!

# # #

Yuri Blanarovich wrote:

> OK, I have been accused of being wrong, claiming that current across the
> antenna loading coil is or can be different at its ends.
> I and "my camp" say that we are seeing somewhere 40 to 60 % less current at
> the top of the coil, than at the bottom, in other words, significant or
> noticeable drop.
> W8JI and "his camp" are claiming it can't be so, current through the coil
> has to be the same or almost the same, with no significant drop across the
> loading coil.
>
> Let's start the fresh thread and trace step by step where I went wrong.
>
> Just reminder that we are talking typical situations, as for example real 40
> m (or 80 m) mobile whip with loading coil about 2/3 up the radiator. We are
> talking about resonant electrical quarter wave monopole. We are talking
> about standing wave RF current that can be measured with RF ammeter and is
> shown and plotted in modeling programs like EZNEC.
>
> Here we go:
>

> <w8ji@akorn.net> wrote in message >
>
>>Let's focus on one thing at a time.
>>
>>You claim a bug cather coil has "an electrical length at 4MHz of ~60
>>degrees". That concept is easily proven false, just like the claim a
>>short loaded antenna is "90-degree resonant". Both can be shown to be
>>nonsense pictures of what is happening.
>>
>>Assume I have a 30 degree long antenna. If the loading inductor is 60
>>electrical degrees long, I could move it anyplace in that antenna and
>>have a 90 degree long antenna.
>>
>>We all know that won't happen, so what is it you are really trying to
>>say?
>>
>>73 Tom
>>
>
>
> OK lets get me some educating here.
> I understand that, say quarter wave resonant vertical (say 33 ft at 40m) has
> 90 electrical degrees.
> Is that right or wrong?
>
> The current distrubution on said (full size) vertical is one quarter of the
> wave of 360 deg. which would make it 90 degrees. Max current is at the base
> and then diminishes towards the tip in the cosine function down to zero.
> Voltage distribution is just opposite, min at the base, feed point and max
> at the tip. EZNEC modeling shows that to be the case too.
> Is that right or wrong?
>
> If we stick them end to end and turn horizontal, we get dipole, which then
> would be 180 deg. "long" or "180 degrees resonant".
> If not, what is the right way?
>
> If I insert the coil, say about 2/3 up (at 5 ft. from the bottom) the
> shortened vertical, I make the coil size, (inductance, phys. dimensions)
> such that my vertical will shrink in size to 8 ft tall and will resonate at
> 7.87 MHz.
> I learned from the good antenna books that this is still 90 electrical
> "resonant" degrees.
> Maximum of current is at the feed point, minimum or zero at the tip.
>
> If you stick those verticals (resonant) end to end and horizontal, you get
> shortened dipole, with current distribution equal to 180 degrees or half
> wave. Max current at the feed point, minima or zero at the tips. (RESONANT
> radiator)
>
> How many electrical degrees would that make? How do you arrive at that?

> Why is this a nonsense?
>
> Can we describe "pieces" or segments of the radiator as having proportional
> amount of degrees corresponding to their physical length, when excited with
> particular frequency?
>
> If I can be enlightened about this, we can go then to the next step.
>
> Answers, corrections please.
>
> Yuri, K3BU
>
>
>

3433. Re: This is the one I was referring to.....

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-23 22:40:22 UTC
From: Dave <noone@nowhere.com>
Message-ID: <aqadnU0H66ZDvr7ZnZ2dnUVZ_tGdnZ2d@crocker.com>
Source record: 62394

then the web site is doing it's job... it got your attention. you have just one misconception, they are SELLING the antenna, not trying to tell you how to build it. so fork over some cash, probably big cash with fancy components like oxygen free uv resistant litz wire! or just go throw some wire in the air and stick a tuner on it and have fun.

"Butch Magee" <lynyrd@cableone.net> wrote in message news:1225ksv6su9hlf1@corp.supernews.com...
> http://www.rys.nl.wfl.htm
>
>
> How do I build this thing, I can't find schematics
> anywhere.....Butch KF5DE

3434. Any good antenna design software

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 00:02:53 UTC
From: David <dhuisman@bigpond.net.au>
Message-ID: <NGGUf.15023$dy4.6714@news-server.bigpond.net.au>
Source record: 62395

I am looking for antenna design software.

Initially I purchased EZNEC and downloaded a couple of other programs but realized these are analysis only programs that are great to check performance and optimize once you have a design.

I managed to find a variety of freeware design programs but they were not very extensive (an mostly DOS programs that sometimes crashed my graphics).

My preference is for a Windows based design environment that provides some templates as starting points for a variety of antenna styles (Yagi, LPDA, Verticals). I would like to be able to set up the program with the materials I have available and some performance criteria and it would output element lengths, spacing, suitable matching (or give input impedance etc). I can then enter this design into EZNEC or MMANA to analyse performance.

Thanks in advance if you can point me to suitable software I can purchase.

Regards

David

3435. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:36:30 UTC
From: w8ji@akorn.net
Message-ID: <1143164190.846521.171860@t31g2000cwb.googlegroups.com>
Source record: 62396

Thanks guys. I tried the models and they still look poor. Let me explain a bit...

> What is "good" gain?

More than a 3 element yagi.

> What frequency?

Well, I was trying 160, 80 and 40. I have a 300ft support at one point, and a bunch of 100ft trees a good distance away across open fields (maybe 800 feet).

> How high?

Anything up to 300 ft at the feedpoint.

> Try this at 10 MHz. Dimensions in feet.

That antenna almost equals a three element yagi in gain, but the 3 ele yagi has a HPBW of 60 degrees. The V beam has a HPBW of 18 degrees. Not so good. Even if I try two V beams, one inside the other, I can only get 3dB more gain.

I was wondering if I was missing something, because I keep hearing stories about how good big V beams work.

3436. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:38:19 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1226jcd1ocf3g84@corp.supernews.com>
Source record: 62397

John Popelish wrote:
> . . .
> Of course, it can't. But a lumped LC network made of perfect, ideal
> components can be constructed that mimic the terminal conditions of the
> coil in question to any degree of accuracy desired. The caveat is that
> you may not explore much of a frequency range if you expect this
> idealized model to remain a good mimic. At another frequency, you have
> to rebuild it to copy the effects at that frequency. The broader the
> frequency range of such a model, the more complexity it must have.

Yes, but you can use an arbitrarily large number of sections, each with a small amount of L and C, and mimic a transmission line to any desired degree, over any frequency range you want. And all with zero physical size in the theoretical case, and arbitrarily small physical size in the practical case. In the limit of an infinite number of sections of vanishingly small L and C each, you arrive at the general equations for a transmission line, valid at all frequencies.

The point I'm trying to make is that you don't need any particular physical size or any particular length of wire to make something that behaves like a transmission line to any degree of accuracy.

Roy Lewallen, W7EL

3437. Re: Any good antenna design software

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:39:06 UTC
From: w8ji@akorn.net
Message-ID: <1143164346.335325.239720@i40g2000cwc.googlegroups.com>
Source record: 62398

David wrote:
> I am looking for antenna design software.
>
> Initially I purchased EZNEC and downloaded a couple of other programs
> but realized these are analysis only programs that are great to check
> performance and optimize once you have a design.

Maybe you should ask for files for specific antennas? People probably
would share what they have.

3438. Re: Current across the antenna loading coil - from scratch

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:44:06 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1226jn6onq2uj28@corp.supernews.com>
Source record: 62400

Dave wrote:
> . . .
> The practical application deals with the efficiency of the antenna. Is
> that tuned 15 degree long antenna a 12.5 ampere degree antenna; or, is
> it a 10.218 ampere degree antenna? [That's approximately a difference of
> 1 dB in antenna performance.]
> . . .

I believe you're comparing the field strengths from two antennas both driven by the same current. If you drive them with the same power, a more fair comparison, you'll find a negligible difference in field strength. Efficiency is another issue, solely related to losses in the antennas. Without knowing what those losses might be, we can't say anything about the relative efficiency. In practice it'll probably be extremely closely the same also.

Roy Lewallen, W7EL

3439. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:44:37 UTC
From: w8ji@akorn.net
Message-ID: <1143164677.811379.203250@t31g2000cwb.googlegroups.com>
Source record: 62399

Roy Lewallen wrote:
> The point I'm trying to make is that you don't need any particular
> physical size or any particular length of wire to make something that
> behaves like a transmission line to any degree of accuracy.

and more important to this discussion, you don't need standing waves or antennas. For any given load impedance, it behaves the same way.

It's a shame Cecil misses that point, and thinks it is standing waves that affect the system.

73 Tom

3440. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 01:58:26 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <NdCdnYYoH-R-zb7ZnZ2dnUVZ_sednZ2d@adelphia.com>
Source record: 62401

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> Of course, it can't. But a lumped LC network made of perfect, ideal
>> components can be constructed that mimic the terminal conditions of
>> the coil in question to any degree of accuracy desired. The caveat is
>> that you may not explore much of a frequency range if you expect this
>> idealized model to remain a good mimic. At another frequency, you
>> have to rebuild it to copy the effects at that frequency. The broader
>> the frequency range of such a model, the more complexity it must have.
>
>
> Yes, but you can use an arbitrarily large number of sections, each with
> a small amount of L and C, and mimic a transmission line to any desired
> degree, over any frequency range you want. And all with zero physical
> size in the theoretical case, and arbitrarily small physical size in the
> practical case. In the limit of an infinite number of sections of
> vanishingly small L and C each, you arrive at the general equations for
> a transmission line, valid at all frequencies.
>
> The point I'm trying to make is that you don't need any particular
> physical size or any particular length of wire to make something that
> behaves like a transmission line to any degree of accuracy.

Oh. Then never mind. :-)

3441. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 02:54:32 UTC
From: Buck <not@this.time>
Message-ID: <cqn622lsss6962i1e4slpkssfgvqensd3k@4ax.com>
Source record: 62402

On Wed, 22 Mar 2006 10:36:48 +0100, Deni <telegrafiste@tiscali.fr>
wrote:

>I'm going to have a go with a 3/8 wavelength (for 160M) wire, lifted by
>a 2M helium balloon during the summer months. The first 40' of wire will
>be supported vertically by a fibre glass mast then the remaining 156' by
>the balloon. I have a ground plane in place already and will use a
>manual tuner at the base to 50 ohm coax, I expect to use this on other
>bands besides Top band. What is a good type of wire to use, obviously
>flexible, not too heavy but good copper content, or would electric fence
>cord (with woven in stainless steel strands) be too lossy? looking for
>any tips advice etc.
>
>73, Deni
>F5VJC

Don't forget to add a bleeder resistor so the static buildup won't
destroy your radio.

--
73 for now
Buck
N4PGW

3442. Re: SMT Inductor(RF choke) with SRF about 3GHz

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 03:33:19 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143171199.090547.24130@i39g2000cwa.googlegroups.com>
Source record: 62403

the reverse voltage is proportional to the reverse cap. the idea of
resonating with a parallel inductor is great but i have 2
problems..first is its hard to find inductor with sfr of about 2.5 ghz
and adds cost and complexity to the board..
thanks!
its good to hear you did similar system.maybe you can help me with
this:

i had built an old version of the antenna using the concept of picodopp
switching setup but employing different pin diode(bar63-02).i bought an
evaluation board of the toshiba receiver at 2.4GHz and it has an fm
detector output pin.im having a hard time decoding a valid demodulated
signal in the khz range.have any ideas?thanks.....

3443. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 04:43:42 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <XOKUf.154$I%6.128@fed1read12>
Source record: 62404

```
<jgboyles@aol.com> wrote in message
news:1143117725.873311.311820@g10g2000cwb.googlegroups.com...
>
> Butch Magee wrote:
> > Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
> > whill i HAVE A VERY really very question on the board. You know, the
> > one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
> > my thoughts work or whut!
> >
> > giddy-yupbapa mau-mau
> > )cant remember where that came from, just enterred my head
> > and has been plaqueing me for for days..............
> >
> > Butch KF5DE
>
> Elvira?

My heart's on fire.
```

3444. Re: antenna theory for idiots?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 04:46:58 UTC
From: k <spam@uce.gov>
Message-ID: <6RKUf.14335$%d.2983@tornado.socal.rr.com>
Source record: 62405

Is this an explanation of the term 'capture area' I hear a lot of hams
use.

regards, Jer

As a 'rule of thumb' the captured signal power in small loops is
proportional to the area enclosed by the loop. Twice the area = twice
the
power (3 dB).

The typical dimensions given for these loops allow them to be used on
either
160M or 80M -- and as you have surmised, the loop can be larger for 160M
only.

73, Gary
K9AY

Subject: [Antennaware] Shielded loop receive antennas.

> In the ARRL antenna handbook (and repeated elsewhere) is a design for
> a 160m shielded rx loop antenna with 5ft square sides.
>
> Can anyone advise me how the strength of the recovered signal would
> change if the loop was made bigger. By using low-capacity coax I
> think I could still resonate a loop that has 7ft square sides. This
> would very nearly double the **AREA** of the loop, I would like to
> understand how this would affect the received signal.
>
> Any thoughts would be appreciated.
>
> 73,

3445. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 05:51:47 UTC
From: Hal Rosser <hmrosser@bellsouth.net>
Message-ID: <NKLUf.2980$IM3.136@bignews3.bellsouth.net>
Source record: 62406

"Butch Magee" <lynyrd@cableone.net> wrote in message
news:12248vhflrht441@corp.supernews.com...
> Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
> whill i HAVE A VERY really very question on the board. You know, the
> one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
> my thoughts work or whut!
>
> giddy-yupbapa mau-mau
>)cant remember where that came from, just enterred my head
> and has been plaqueing me for for days.....
>
> Butch KF5DE
its
oom papa oom papa mau mau
El vire ah
Mah harts on fire -uh 4 elvire-uh
oom papa oom papa mau mau

3446. Aprspoint version 3.1 available

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 07:24:22 UTC
From: "hxc98@yahoo.com" <hxc98@yahoo.com>
Message-ID: <1143185062.053172.320250@e56g2000cwe.googlegroups.com>
Source record: 62407

Fixed several issues raised by users regarding 3.0, Specifically

1. How the server filter setting is handled,
2. Server report path correction,
3. Position dialog default values,
4. Persisted settings for station and gps tracking,

Check http://www.aprspoint.com/ for details. Thanks.

3447. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 08:28:59 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1227bed4qaf0t71@corp.supernews.com>
Source record: 62408

John Popelish wrote:
> Roy Lewallen wrote:
>> John Popelish wrote:
>>> Roy Lewallen wrote:
>
> You keep going back to how lumped components can mimic actual
> distributed ones (over a narrow frequency range). I get it. I have no
> argument with it. But why do you keep bringing it up? We are talking
> about a case that is at least a border line distributed device case. I
> am not interested in how it can be modeled approximately by lumped,
> ideal components. I am interested in understanding what is actually
> going on inside the distributed device.

I'm sorry I haven't explained this better. If we start with the inductor in, say, the example antenna on Cecil's web page, we see that the magnitude of current at the top of the inductor is less than at the bottom of the inductor. Cecil has promoted various theories about why this happens, mostly involving traveling wave currents and "replacement" of "electrical degrees" of the antenna. He and others have given this as proof that the current at the two ends of an inductor are inherently different, regardless of its physical size. My counter argument goes something like this:

1. If we substitute a lumped component network for the antenna, there are no longer traveling waves -- along the antenna at least -- and no number of "missing electrical length" for the inductor to replace. Or if there is, it's "replacing" the whole antenna of 90 degrees. Yet the currents in and out of the inductor are the same as they were before. I feel this is adequate proof of the invalidity of the "replacement" and traveling wave arguments, since I can reproduce the same results with the same inductor without either an antenna or traveling waves. This is shown in the modified EZNEC file I posted.

2. The argument that currents are inherently different at the ends of an inductor is shown to be false by removing the ground in the model I posted and replacing it with a wire. Doing so makes the currents nearly equal.

3. Arguments have then been raised about the significance of the wire and inductor length, and various theories traveling waves and standing waves within the length of the coil. Let's start with the inductor and no ground, with currents nearly equal at both ends. Now shrink the coil physically by shortening it, changing its diameter, introducing a permeable core, or whatever you want, until you get an inductance that has the same value but is infinitesimal in physical size. For the whole

transition from the original to the lumped coil, you won't see any significant(*) change in terminal characteristics, in its behavior in the circuit, or the behavior of the whole circuit. So I conclude there's no significant electrical difference in any respect between the physical inductor we started with and the infinitesimally small lumped inductor we end up with. And from that I conclude that any explanation for how the original inductor worked must also apply to the lumped one. That's why I keep bringing up the lumped equivalents. We can easily analyze the lumped circuit with elementary techniques; the same techniques are completely adequate to fully analyze the circuit with real inductor and capacitance to ground.

(*) I'm qualifying with "significant" because the real inductor doesn't act *exactly* like a lumped one. For example, the currents at the ends are slightly different due to several effects, and the current at a point along the coil is greater than at either end due to imperfect coupling among turns. But the agreement is close -- very much closer than the alternative theories predict (to the extent that they predict any quantitative result).

>
>>> The question, I think is whether large, air core coils act like a
>>> single inductance (with some stray capacitance) that has essentially
>>> the same current throughout, or is a series of inductances with
>>> distributed stray capacitance) that is capable of having different
>>> current at different points, a la a transmission line. And the
>>> answer must be that it depends on the conditions. At some
>>> frequencies, it is indistinguishable from a lumped inductance, but at
>>> other frequencies, it is clearly distinguishable. You have to be
>>> aware of the boundary case.
>>
>>
>> Yes. It's a continuum, going from one extreme to the other. As Ian has
>> pointed out several times, any theory should be able to transition
>> from one to the other.
>
> Or start with a less simplified theory that covers all cases, so you
> don't have to decide when to switch tools.

That's fine, too. Will Cecil's theory explain the behavior of a lumped constant circuit? Or everywhere along the transition between the physical inductor and lumped circuit I described above?

> > The example Cecil posted on his web page was one for
>> which the L could be modeled completely adequately as a lumped L, at
>> least so far as its current input and output properties were concerned.
>
> (if you add to that model, the appropriate lumped capacitors at the
> appropriate places)

No. The inductor itself can be adequately modeled as a lumped inductor without any capacitors at all. When you add ground to the model, you

have to add the equivalent shunt C to the lumped model. The C isn't a property of the inductor itself; it's the capacitance between the inductor and ground. This difference is the source of confusion and misunderstanding about the current -- the current we see at the top of the inductor is the current exiting the inductor minus the current going via the shunt C to ground. It's not due to a property of the inductor itself. We're seeing the *network* current, not the inductor current. Removing the ground lets us see the inductor current by itself.

>
>> Being a significant fraction of the antenna's total length, it of
>> course does a substantial amount of radiating which a lumped model
>> does not.
> Another reason to avoid that model, unless you are just looking for the
> least amount of math to get an approximation. But computation has
> gotten very cheap.

The problem is that it obscures what's happening -- we can no longer easily tell which effects are due to the radiation, which are due to the capacitance, and which are inherent properties of inductance unless we separately analyze separate simplified circuits (as I did with EZNEC). And that's really what the whole disagreement has been about. Effects due to shunt capacitance have been claimed to be inherent properties of all inductors, and elaborately crafted theories developed to attempt to explain it. If all you want is numbers, they're plenty easy to get without the programmer needing to have the slightest understanding of what's happening. And he will have learned nothing he can apply to other situations.

Distributed analysis is just fine, but it should predict the same coil currents with the antenna replaced by lumped components. And it should predict nearly equal currents in the inductor ends when ground is removed. And it should predict the same results when the coil and the shunt C to ground are replaced by lumped components. Because that's what really happens. My simplified lumped component analysis does all this. A rigorous solution of the fundamental equations for distributed networks does this also -- EZNEC does its calculations with just such equations and reaches the correct conclusions. But I don't believe that Cecil's theories and methods provide the correct results in all these cases.

> . . .

> A lumped inductor has no stray capacitance. Those also have to be added
> to the model, before the effect would mimic the real coil (neglecting
> radiation).

By removing the ground in the model on my web site, I found that a lumped inductor mimics the real inductor very well without any C. Of course, to model an inductor close to ground requires adding a shunt C. Modeling an inductor connected to a resistor would require adding a resistor to the model. But we shouldn't confuse what the inductor is contributing to the performance of the circuit with what the other

components are. And that confusion has been common here.

> . . .

> But in the real world, the capacitance is always there. It varies,
> depending on the location of the coil, but it never approaches zero.

It can get insignificantly small, as in the modified model. But that's really beside the point. The point is that the shunt C isn't an inherent property of the inductor, and the current difference between the top and bottom of an electrically short coil is due to the current flowing through the external shunt C, however big or small it is. It's not due to waves bouncing around inside the coil or painstakingly winding their way turn by turn from one end to the other, or by any inherent and fixed property of the inductor or the antenna it's connected to.

Roy Lewallen, W7EL

3448. MATLAB CODE FOR IMPEDENCE MATCHING NETWORK

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 13:10:30 UTC
From: "spmayya@yahoo.com" <mahesh.bidar@gmail.com>
Message-ID: <1143205830.833926.219480@t31g2000cwb.googlegroups.com>
Source record: 62409

HELLO, EVERY ONE I WANT A MATLAB CODE , FOR "DESIGNING A IMPEDENCE MATCHING NETWORK FOR HIGH FREQUENCY 2MHZ TO 29.9 MHZ" & its allied code like measuring L C R values & for smith chart help need badly urgent, thanks in advance with regards MAHESH

3449. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 13:13:13 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <NcSdnWI1T4b1bb7ZRVn-jg@comcast.com>
Source record: 62410

w8ji@akorn.net wrote:

SNIPPED
> That antenna almost equals a three element yagi in gain, but the 3 ele
> yagi has a HPBW of 60 degrees. The V beam has a HPBW of 18 degrees. Not
> so good. Even if I try two V beams, one inside the other, I can only
> get 3dB more gain.
>
> I was wondering if I was missing something, because I keep hearing
> stories about how good big V beams work.
>

Something does not make sense!!

There HAS to be a difference in gain between two antennas IF their HPBW
are different. Isn't it the case that the narrower beam has to have
higher gain?

3450. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 13:31:43 UTC
From: w8ji@akorn.net
Message-ID: <1143207103.880628.220750@j33g2000cwa.googlegroups.com>
Source record: 62411

Dave wrote:
> Something does not make sense!!
>
> There HAS to be a difference in gain between two antennas IF their HPBW
> are different. Isn't it the case that the narrower beam has to have
> higher gain?

No.

First problem, the V beam has more loss. Probably because of the very long current path through conductors.

Second problem, large sidelobes that rob power

The beamwidth of high gain is much narrower than a Yagi, but the thing has no more gain.

It looks like a simple antenna, has a good reputation, but it doesn't look very useful for anything. Unless there is a combination I'm missing.

73 Tom

3451. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:15:07 UTC
From: Dale Parfitt <par@parelectronics.com>
Message-ID: <L9TUf.15$ES3.9@trnddc02>
Source record: 62412

<w8ji@akorn.net> wrote in message
news:1143207103.880628.220750@j33g2000cwa.googlegroups.com...
>
> Dave wrote:
>> Something does not make sense!!
>>
>> There HAS to be a difference in gain between two antennas IF their HPBW
>> are different. Isn't it the case that the narrower beam has to have
>> higher gain?
>
> No.
>
> First problem, the V beam has more loss. Probably because of the very
> long current path through conductors.
>
> Second problem, large sidelobes that rob power
>
>I would only add that one of the sidelobes in the Vee beam- off the rear-
>is almost as large as the main lobe, being typically only 2-3dB down from
>the forward lobe.

Dale W4OP

3452. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:28:32 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <kmTUf.617470$qk4.306408@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62413

Cecil,

You can be the master of brevity, at least when it serves your purposes. You might take a look at the entire sentence rather than clip out the portion that sets the context.

"Certainly these consolidating functions are useful for a general overview, but how can you learn anything about the details of a complex system by averaging and netting?"

By the way, "steady-state analysis" has nothing whatsoever to do with averaging. Steady-state simply means the system does not have a defined starting time. There are no remaining startup transients. It cannot be determined whether operation started one second ago or one year ago. Steady-state does not mean DC, averaged, or RMS.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> ... how can you learn anything about the details of a complex system
>> by averaging and netting?
>
>
> Because the conservation of energy principle is about
> averaging and netting. Because steady-state analysis
> is about averaging and netting. Because engineers
> have 200 years of averaging and netting behind us
> to prove that it works. When you try to track an
> individual electron's velocity and position, guess
> what happens?

3453. Re: Reducing number of elements in this design

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:30:23 UTC
From: Buck <not@this.time>
Message-ID: <tj082214o5l8cm6urimuk92fq47uau7eq1@4ax.com>
Source record: 62414

On Sun, 19 Mar 2006 02:20:44 GMT, David <dhuisman@bigpond.net.au>
wrote:

>Hi,
>
>Would someone be able to advise me how I would calculate new dimensions
>to scale the 9-Element Yagi
>(described at http://www.qsl.net/ve3cvg/antennas/900b/index.html)
>down to say a 4 or 5 element version.

FWIW, if you can't model the antenna and change the design, try
looking for someone else's design similar enough to make the change.

You may just try reducing the number of elements according to your
desired maximum length without much consequence.

Good luck
BUck
n4pgw

--
73 for now
Buck
N4PGW

3454. Re: SWR Tells Me??

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:30:29 UTC
From: Buck <not@this.time>
Message-ID: <4k0822pr8pp31dukckhb7s8n4joh4keqel@4ax.com>
Source record: 62415

On Mon, 20 Mar 2006 08:12:51 -0700, jimbo <jimbo62@spamex.com> wrote:

>OK, I have a new 2 meter j-pole antenna installed in my 3rd floor
>attic. I have 50 feet of LMR240 coax running to the basement. I
>measure SWR at the following frequencies on simplex.
>
>144.2 2.5
>145.2 2.4
>146.2 2.3
>147.2 1.9
>147.9 1.7
>
>Can I conclude that the antenna is electrically short for the 2 meter
>band?
>
>Thanks for any insight, jimbo

That or it is mis-matched

--
73 for now
Buck
N4PGW

3455. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:30:33 UTC
From: Buck <not@this.time>
Message-ID: <8k0822die4ing7rtpoheb5n44hbuf0okam@4ax.com>
Source record: 62416

I was just reading about them in the antenna handbook. The v-beam is
better than a dipole and is directional, but the same wire bent
half-way out to make a rombic seems to add more gain. you might look
into it.

Buck
N4PGW

On 22 Mar 2006 17:40:02 -0800, w8ji@akorn.net wrote:

>I've been modeling V beams off and on for a few years now, and never
>can seem to get one that has useful gain.
>
>Has anyone seen a successful model anyplace of a two or three wave V
>with good gain??
>
>73 Tom

--
73 for now
Buck
N4PGW

3456. Re: Attic antenna: rotator upside-down work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:38:16 UTC
From: Buck <not@this.time>
Message-ID: <q018221rrlqsgfcu60j6qp6ktn00q2tktu@4ax.com>
Source record: 62417

```
>
> BB> Will an antenna rotator like a Radio Shack or Channel Master work if
> BB> hung upside-down from a roof beam, or should I try to come up with a
> BB> way to secure it to the attic floor?
>
>

Do you have a break-down of the assembly of the rotor? If there are
no bearings when held upside down, you may damage the rotor by hanging
it that way.

Buck
--
73 for now
Buck
N4PGW
```

3457. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 14:57:21 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <dNTUf.14125$6a1.5229@fed1read04>
Source record: 62418

Here is a site for examples of capture areas of antennas

http://www.sommerantennas.com/gain.html

--
CL -- I doubt, therefore I might be !

"k" <spam@uce.gov> wrote in message
news:6RKUf.14335$%d.2983@tornado.socal.rr.com...
> Is this an explanation of the term 'capture area' I hear a lot of hams
> use.
>
> regards, Jer
>
> As a 'rule of thumb' the captured signal power in small loops is
> proportional to the area enclosed by the loop. Twice the area = twice
> the
> power (3 dB).
>
> The typical dimensions given for these loops allow them to be used on
> either
> 160M or 80M -- and as you have surmised, the loop can be larger for 160M
> only.
>
> 73, Gary
> K9AY
> _________
>
> Subject: [Antennaware] Shielded loop receive antennas.
>
>
>> In the ARRL antenna handbook (and repeated elsewhere) is a design for
>> a 160m shielded rx loop antenna with 5ft square sides.
>>
>> Can anyone advise me how the strength of the recovered signal would
>> change if the loop was made bigger. By using low-capacity coax I
>> think I could still resonate a loop that has 7ft square sides. This
>> would very nearly double the **AREA** of the loop, I would like to
>> understand how this would affect the received signal.
>>
>> Any thoughts would be appreciated.
>>
>> 73,
>
>

3458. Re: Attic antenna: rotator upside-down work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 15:13:58 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <W0UUf.62864$dW3.6557@newssvr21.news.prodigy.com>
Source record: 62419

"Buck" <not@this.time> wrote in message
news:q018221rrlqsgfcu60j6qp6ktn00q2tktu@4ax.com...
>
>>
>> BB> Will an antenna rotator like a Radio Shack or Channel Master work if
>> BB> hung upside-down from a roof beam, or should I try to come up with a
>> BB> way to secure it to the attic floor?
>>
>>
>
> Do you have a break-down of the assembly of the rotor? If there are
> no bearings when held upside down, you may damage the rotor by hanging
> it that way.
>
> Buck
> --
Don't know about some of the newer inexpensive TV type rotors, but my old
AR-40 has lubricated ball bearings running in a groove. Don't know if
running that upside down would
be a problem or not. I believe I'd work out an attic floor mount that would
allow it to operate in the normal orientation. If cost is not a priority,
however, running it upside down might make for an interesting experiment.

Harold
KD5SAK

3459. Re: Attic antenna: rotator upside-down work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 16:26:32 UTC
From: Tam/WB2TT <t-tammaru@c0mca$t.net>
Message-ID: <Vqudnf9CWO80gLnZnZ2dnUVZ_vidnZ2d@comcast.com>
Source record: 62420

"kd5sak" <kd5sak@sbcglobal.net> wrote in message
news:W0UUf.62864$dW3.6557@newssvr21.news.prodigy.com...
>
> "Buck" <not@this.time> wrote in message
> news:q018221rrlqsgfcu60j6qp6ktn00q2tktu@4ax.com...
>>
>>>
>>> BB> Will an antenna rotator like a Radio Shack or Channel Master work if
>>> BB> hung upside-down from a roof beam, or should I try to come up with a
>>> BB> way to secure it to the attic floor?
>>>
>>>
>>
>> Do you have a break-down of the assembly of the rotor? If there are
>> no bearings when held upside down, you may damage the rotor by hanging
>> it that way.
>>
>> Buck
>> --
> Don't know about some of the newer inexpensive TV type rotors, but my old
> AR-40 has lubricated ball bearings running in a groove. Don't know if
> running that upside down would
> be a problem or not. I believe I'd work out an attic floor mount that
> would allow it to operate in the normal orientation. If cost is not a
> priority, however, running it upside down might make for an interesting
> experiment.
>
> Harold
> KD5SAK
I don't think it will work right. There will be no force on the ball
bearings at all, they will just be floating. All the friction will show up
on whatever is on the other end of the shaft that keeps the unit from
falling apart.

Tam/WB2TT

3460. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 17:04:51 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <i82dnYPrsK4vu7nZnZ2dnUVZ_uidnZ2d@comcast.com>
Source record: 62421

w8ji@akorn.net wrote:

SNIPPED
>
> It looks like a simple antenna, has a good reputation, but it doesn't
> look very useful for anything. Unless there is a combination I'm
> missing.
>
> 73 Tom
>

I've never worked with a Vee antenna. But, while stationed at Hill AFB, Utah we used two of them back to back to make a Rhombic :-) to support the South East Asia phone patch nets during the Vietnam conflict. Fixed point to point communication [We had an LP that was used for stateside COMMs]

My understanding is that a narrow beam is formed along the axis [centerline] of the Vee. In a standing wave antenna, the beam is bi-directional. In a terminated antenna, traveling wave, the pattern is unidirectional. The narrow beam width reduces interference from undesired directions.

Total wavelength and included angle have significant impact on performance.

I wonder of Roy can add constructively to this discussion regarding apparent low gain.

3461. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 17:09:40 UTC
From: w8ji@akorn.net
Message-ID: <1143220180.832597.278530@j33g2000cwa.googlegroups.com>
Source record: 62422

Caveat Lector wrote:
> Here is a site for examples of capture areas of antennas
>
> http://www.sommerantennas.com/gain.html
>
> --
> CL -- I doubt, therefore I might be !
>
> > As a 'rule of thumb' the captured signal power in small loops is
> > proportional to the area enclosed by the loop. Twice the area = twice
> > the
> > power (3 dB).

That's all nonsense, including the Sommer site!!

Capture area, more correctly called effective aperture, and gain has nothing directly to do with physical area of an antenna. It is strictly a function of the operating wavelength and gain of the antenna.

If I double the size of an antenna the capture area (effective aperture) might increase, decrease, or stay the same.

If I have a small loop and it has zero loss, the capure area is effectively very large.

If I have a full size dipole and add enough loss resistance, capture area is very small.

Capture area is generally an excuse people make to justify using a larger antenna, even if the antenna does not work as nearly as well. "My quad works great for receiving because it has large capture area." Nonsense. If it has the same gain as a Yagi on the same band, it has exactly the same capture area. If it has less gain than a Yagi (which many quads do, hence the reason you don't see them in contest stations) it has less capture area.

I'd be ashamed if I was selling antennas and did not understand what capture area was.

73 Tom

3462. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 17:15:08 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1228a8tt916thca@corp.supernews.com>
Source record: 62423

You can also find many postings explaining capture area by doing a groups.google.com search of this newsgroup for the phrase "capture area". I've explained it here several times.

Roy Lewallen, W7EL

Caveat Lector wrote:
> Here is a site for examples of capture areas of antennas
>
> http://www.sommerantennas.com/gain.html
>

3463. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 17:32:30 UTC
From: w8ji@akorn.net
Message-ID: <1143221550.629954.61180@j33g2000cwa.googlegroups.com>
Source record: 62424

Howard W3CQH wrote:
> Hi - Steve,
> Yes - that is correct.
> If the quad is a diamond shape for example, you could feed it either from
> the bottom "V" or the side "V". What is the polarity at each feed point?
> Also - if the antenna is a square, you can feed it from the middle of the
> bottom or the middle of the side: again what is the polarity vs. the feed
> point?

Howard,

The polarization of a quad fed at the bottom of a diamond is
horizontal.

The polarization of a quad fed on the point of the side is vertical.

The polarity of the feedpoint changes 14,000,000 times if you excite it
on 14MHz for one second no matter where it is fed, but the polarization
only changes when you move the feedpoint to a new location. :-)

That's a nice feature of a quad. By changing feedpoint loaction you can
change polarization.

73 Tom

3464. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 17:45:05 UTC
From: w8ji@akorn.net
Message-ID: <1143222305.931411.128160@u72g2000cwu.googlegroups.com>
Source record: 62425

> Caveat Lector wrote:
> > Here is a site for examples of capture areas of antennas
> >
> > http://www.sommerantennas.com/gain.html

Check this out:

http://www.sommerantennas.com/tcs25.html

73 Tom

3465. Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 18:48:28 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <0aXUf.6445$x94.4064@newsread1.news.pas.earthlink.net>
Source record: 62326

I was browsing through Antennas by Kraus, second ed., looking for something that might explain how two antennas separated by a distance D would have a resolution as the same as an antenna of size D, and hit upon some methods for computing radiation patterns. I'm not all that familiar with the methodology, but think it might be worthwhile exploring.

I'm not all that knowledgeable about antenna theory, but was stumped by the introduction of antenna phase. He computes the patterns for several pairs of isotropic antennas separated by a distance d. There are several cases, which involve fixed or differences in phase and amplitude he considers, Chap. 4, sect. 4.2. Can anyone make the idea of phase dependency for an antenna, particularly an isotropic antenna (or whatever), a little more practical or real? Early on he talks about the phase delta being a function of (theta, phi) according to a typical Kraus 3-D view of this material. A nice abstraction, but I need something a little more concrete*.

Of course, maybe my statement above about D is simpler to *prove* (not hand wave) than wading through this material.

* I just noticed section 3-17 has some material on phase. Maybe that'll work.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"Nature invented space so that everything didn't
have to happen at Princeton." -- Martin Rees,
Britain's Royal Astronomer, in a lecture at Princeton

Web Page: <home.earthlink.net/~mtnviews>

3466. Re: OLD 5 BAND TRP ANTENNA

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 19:07:23 UTC
From: leland
Message-ID: <J6-dnRldMfbt3rnZnZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 62327

"P & M Computers, Inc" fpoeta@LYCOS.COM wrote in message
news:442078ca$0$9579$6d36acad@titian.nntpserver.com...

>>> A good photos would help ..
>>
> Like this?
>
nope, wrong photo - leland

3467. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 19:38:33 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1228i421r97vm3e@corp.supernews.com>
Source record: 62328

Sal M. Onella wrote:
> <jgboyles@aol.com> wrote in message
> news:1143117725.873311.311820@g10g2000cwb.googlegroups.com...
>
>>Butch Magee wrote:
>>
>>>Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
>>>whill i HAVE A VERY really very question on the board. You know, the
>>>one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
>>>my thoughts work or whut!
>>>
>>>giddy-yupbapa mau-mau
>>>)cant remember where that came from, just enterred my head
>>>and has been plaqueing me for for days.............
>>>
>>>Butch KF5DE
>>
>>Elvira?
>
>
> My heart's on fire.
>
>
Yep, an oldie and a goodie. Drove me nuts till I found out.
Thanks Sal

Butch

3468. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 19:41:11 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <1228i8vq26k169a@corp.supernews.com>
Source record: 62329

Hal Rosser wrote:
> "Butch Magee" <lynyrd@cableone.net> wrote in message
> news:12248vhflrht441@corp.supernews.com...
>
>>Cecil< QUIT talking with alll those kidz about sparks "n arks "n stuff
>>whill i HAVE A VERY really very question on the board. You know, the
>>one about the Wideband Folded Loop (WFL) 400.00 FROM RF-Systems. Will
>>my thoughts work or whut!
>>
>>giddy-yupbapa mau-mau
>>)cant remember where that came from, just enterred my head
>>and has been plaqueing me for for days.............
>>
>>Butch KF5DE
>
> its
> oom papa oom papa mau mau
> El vire ah
> Mah harts on fire -uh 4 elvire-uh
> oom papa oom papa mau mau
>
>
>
Yes, yea verily that is it!! I was literaly going nuts with that ditty
running through my head.....but I got it now.
Thanks,
Butch

3469. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 19:53:56 UTC
From: Wes Stewart <n7ws*@*yahoo.com>
Message-ID: <5si82216c9dstctdr1sh26bn8rp0r0c6h4@4ax.com>
Source record: 62330

On Fri, 24 Mar 2006 12:04:51 -0500, Dave <W1MCE@comcast.net> wrote:

>w8ji@akorn.net wrote:
>
>SNIPPED
>>
>> It looks like a simple antenna, has a good reputation, but it doesn't
>> look very useful for anything. Unless there is a combination I'm
>> missing.
>>
>> 73 Tom
>>
>
>I've never worked with a Vee antenna. But, while stationed at Hill AFB,
>Utah we used two of them back to back to make a Rhombic :-) to support
>the South East Asia phone patch nets during the Vietnam conflict. Fixed
>point to point communication [We had an LP that was used for stateside
>COMMs]
>
>My understanding is that a narrow beam is formed along the axis
>[centerline] of the Vee. In a standing wave antenna, the beam is
>bi-directional. In a terminated antenna, traveling wave, the pattern is
>unidirectional. The narrow beam width reduces interference from
>undesired directions.

Tom is correct. Vee beams and rhombics have horrible sidelobes that
make them in my estimation highly overrated. The vee is not completely
bi-directional, a couple of dB FB is not uncommon. A vee, just like a
rhombic can be terminated to increase the FB. If the legs are long
enough it -is- a traveling-wave antenna and is somewhat
self-terminating.

The claim for broadband gain is also suspect. There are optimum
parameters that are not frequency independent

Of course I can't fault VK5MC's three-stack rhombic that gave me my
two-meter WAC :-)

>
>Total wavelength and included angle have significant impact on performance.

Of course.

3470. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 20:07:31 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <2rf822tkt3nuqjqmbtaulff9vj83c3vjuc@4ax.com>
Source record: 62331

On Fri, 24 Mar 2006 18:48:28 GMT, "W. Watson"
<wolf_tracks@invalid.com> wrote:

>There are several cases, which
>involve fixed or differences in phase and amplitude he considers, Chap. 4,
>sect. 4.2. Can anyone make the idea of phase dependency for an antenna,
>particularly an isotropic antenna (or whatever), a little more practical or
>real? Early on he talks about the phase delta being a function of (theta,
>phi) according to a typical Kraus 3-D view of this material. A nice
>abstraction, but I need something a little more concrete*.

Hi Wayne,

Not having that reference in front of me, I will wing what appears to
be the topic at hand.

When you have two detectors that are resolving one source, or when you
have two sources that are impinging on one detector; then you have the
makings of triangulation. I hope that much of the 3-nature of this
problem reduced to its simplest terms is apparent.

For the sake of discussion, we can call them X, Y, and A; where the
pairing of the X-Y are the two that are similar and A is the odd one
out.

The distance XA can be expressed in meters, phase, or time. Similarly
the distance YA can be expressed in meters, phase, or time. Going
further, the distance XY can be expressed in meters, phase, or time.
The units of meters, phase, and time are all fungible. That means
they substitute equally as long as you take care to use the same units
throughout. Whenever you read distance, think phase instead, or
convert to phase. Even though they are the same, meters or seconds
just aren't as useful in our discussion.

When you mathematically combine these distances, you can precisely
described the signal strength at any point (including those points not
described as A, X, or Y).

Take a simple DC example of X being a positive charge of 1, and Y
being a negative charge of 1. If A lies on a line that is between the
two, and is perpendicular to their axis, then A will sense a
difference of 0. If you move A out of this perpendicular plane, it
will encounter non-zero fields because the contribution of the two
charges do not cancel fully. This moving of A throughout space will
map out what is called "the dipole moment" which looks like a figure
8.

Extend this analogy to the RF by simply stating that X and Y are 180ï¿½ out of phase. In the first position of A, it will still resolve a 0 difference (the two paths XA and YA are equal by definition and the phase is bucking - net 0 signal). Move A out of its perpendicular plane and the two path distances will be non equal. A small signal will emerge from the combination of the two XY signals.

Push this analogy a little more by slightly changing the phase of either X or Y. A at its original position will now perceive two out of phase signals, but their phase difference will yield a small signal response.

If you move A to the correct spot (out of the plane of perpendicularity), you may find that null again. Thus THAT null occupies a region that satisfies the combination of a resultant phase of 180ï¿½. This is accomplished by shifting the
XA distance - YA distance
expressed in terms of phase such that when added to the XY phase yields 180ï¿½.

This last operation is called Beam Steering, you moved the null in 3-space using only phase shift at one X or Y. You could have as easily moved X or Y too to accomplish nearly the same result. You can also steer the point of maximum (the anti-null) - and did. If you flip the roles of the source and detector, you have source location.

You can also achieve some steering through amplitude shifts of XY, but this is bringing more complexity to the topic. Suffice it to say that this math of combining amplitudes and phases for Beam Steering or source triangulation applies equally to source/detectors as it does to detector/sources.

With two sources/detectors XY, there are ambiguous results. The nulls occupy two regions, not one. If you add a non co-planar third source/detector XYZ, then you can resolve without ambiguity (or perhaps less). This is still a matter of combining distances to A in terms of meters, time, or phase.

The Method of Moments used by NEC is simply (ironically, more complex) the substitution of many, many sources in the place of segments of an antenna's structure. That is, a MOM dipole is composed of perhaps a dozen infinitesimal radiators in a line, with each having a phase shifted signal of a different amplitude. Their combination at a distance gives us that "Dipole Moment" (figure 8 field) that is so familiar. The utility of the MOM is you can shape up to several hundred or thousand sources into a complex geometry to present a more complex field resultant. NEC is merely a phase/distance/time combining engine that moves A throughout space to build a response map.

To this last point, it reveals a truism:
The entire radiator emits, not just a portion of it.

The "entire" radiator consists of the antenna, its counterpoise, its loading, and sometimes its feedline.

Another truism arises:
The entire radiator emits in all directions (think spherically).

Remote detectors are illuminated by a radiator no matter where they might lie. That they may not sense this illumination is merely the consequence of overlapping, bucking phases.

One might be tempted to say that for the classic dipole, there is no radiation off the ends. The second truism negates that. You need only flip the phase of one half of the dipole to make it endfire (yes, easier said than done). In the first, classic sense both sides illuminate far colinear objects destructively. In the second sense both sides illuminate far colinear objects constructively.

73's
Richard Clark, KB7QHC

3471. Re: which is best?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 20:23:31 UTC
From: Michael Coslo <mjc5@psu.edu>
Message-ID: <e01kgb$m08$1@f04n12.cac.psu.edu>
Source record: 62332

Frank wrote:
> "RB" <rbig@bellsouth.nospam.net> wrote in message
> news:iJkUf.578$Pe.103@bignews6.bellsouth.net...
>> Well, I'm still getting tripped up in my terms. Not doing too well, here.
>>
>> What I'm looking for is max low angle radiation comparison of the two.
>
> The vertical, should have a far better low angle performance, although
> four radials is probably inadequate to minimize ground absorbtion.

Better to s that the vertical will put out more of it's energy at low angles. That makes a difference.

Another thing to consider is that the vertical will take a whole lot longer to install than the dipole. Those radials can be a real pain in the back!

The way my thinking has been shifting recently, I would suggest that people - a lot of people - think of the radiation pattern of an antenna as some sort of narrow blob that shoots off the thing at the "maximum angle". Trouble is, all antennas radiate at all angles. Some just better than others. Before condemning a dipole as not usable for DX because of its radiation angle, we should probably compare it to the angle of that vertical. Then look at just how many db difference there is between the two (all else being equal).

And of course, as I have been finding out, which one does best at any given moment (let's define best as the highest signal level at the receiver) is going to change from moment to moment. I haven't gone to transmitting differences yet

- 73 de Mike KB3EIA -

> The inclusion of a loading coil does little or nothing to effect the
> radiation efficiency.

3472. Re: Quad Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-24 22:16:10 UTC
From: Howard W3CQH <hgorden@adelphia.net>
Message-ID: <afSdnTtBru0w8rnZRVn-jg@adelphia.com>
Source record: 62333

Thanks Tom for the information.

Best 73's
<w8ji@akorn.net> wrote in message
news:1143221550.629954.61180@j33g2000cwa.googlegroups.com...
>
> Howard W3CQH wrote:
>> Hi - Steve,
>> Yes - that is correct.
>> If the quad is a diamond shape for example, you could feed it either from
>> the bottom "V" or the side "V". What is the polarity at each feed point?
>> Also - if the antenna is a square, you can feed it from the middle of the
>> bottom or the middle of the side: again what is the polarity vs. the feed
>> point?
>
> Howard,
>
> The polarization of a quad fed at the bottom of a diamond is
> horizontal.
>
> The polarization of a quad fed on the point of the side is vertical.
>
> The polarity of the feedpoint changes 14,000,000 times if you excite it
> on 14MHz for one second no matter where it is fed, but the polarization
> only changes when you move the feedpoint to a new location. :-)
>
> That's a nice feature of a quad. By changing feedpoint loaction you can
> change polarization.
>
> 73 Tom
>

3473. What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 00:01:51 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1143244911.442365.111790@z34g2000cwc.googlegroups.com>
Source record: 62334

http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html

The author calls it a sector antenna but I'm sure I've seen it in ham applications but with another name.

Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?

Thanks for the help!

Ken KG0WX

3474. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 00:22:05 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122939i4qtju335@corp.supernews.com>
Source record: 62335

That's a collinear array, of a type sometimes called a Franklin antenna.

It's very hard to estimate the gain, because even when constructed perfectly, the velocity factor of the coax prevents the inside and outside from both being the ideal length. And at that frequency, very small imperfections in building technique can have a major impact on the gain. But it should be a fun project and it might give noticeable gain over a quarter wave monopole.

Roy Lewallen, W7EL

KG0WX wrote:
> http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>
> The author calls it a sector antenna but I'm sure I've seen it in ham
> applications but with another name.
>
> Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?
>
> Thanks for the help!
>
> Ken KG0WX
>

3475. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 00:25:52 UTC
From: Stargatesg1 <nospam@here.net>
Message-ID: <k60Vf.61$f21.56@trnddc01>
Source record: 62336

It looks like a collinear style antenna to me. It should have decent gain.

--
RoD
KD0XX
PG-6-29404

"KG0WX" <kg0wx@yahoo.com> wrote in message
news:1143244911.442365.111790@z34g2000cwc.googlegroups.com...
>
> http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>
> The author calls it a sector antenna but I'm sure I've seen it in ham
> applications but with another name.
>
> Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?
>
> Thanks for the help!
>
> Ken KG0WX
>

3476. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 00:30:31 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1143246630.931283.33640@j33g2000cwa.googlegroups.com>
Source record: 62337

Thanks Roy - I'm currently using inverted V's
taped to the rear of the display on my laptop
and I was wondering if it was worth it to make
that antenna to replace what I'm running.

Ken KG0WX

3477. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 00:41:17 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <baadnc0L3JPQDbnZRVn-ig@adelphia.com>
Source record: 62338

Caveat Lector wrote:
> Here is a site for examples of capture areas of antennas
>
> http://www.sommerantennas.com/gain.html

Have you got a link to a similar site that covers ferrite rod antennas?

3478. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 01:09:06 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <9o5922h62tupb9b7kj5lvg91ud5i64r1i4@4ax.com>
Source record: 62340

On Fri, 24 Mar 2006 06:57:21 -0800, "Caveat Lector"
<UALLBeware@9984reader.com> wrote:

>Here is a site for examples of capture areas of antennas
>
>http://www.sommerantennas.com/gain.html

Are you recommending it?

Is the following statement from the page correct?

"Note: Antenna B has only half the capture area of antenna A and is
therefore able to "catch" only 50 percent of the electromagnetic
field; e.g., 50mV, compared to 100 mV/50 Ohms. This means 6dB less
gain for antenna B in comparison to antenna A."
--

3479. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 01:13:26 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <wqOdnZMAU_BKCrnZnZ2dnUVZ_vSdnZ2d@adelphia.com>
Source record: 62339

Roy Lewallen wrote:
> John Popelish wrote:

>> You keep going back to how lumped components can mimic actual
>> distributed ones (over a narrow frequency range). I get it. I have
>> no argument with it. But why do you keep bringing it up? We are
>> talking about a case that is at least a border line distributed device
>> case. I am not interested in how it can be modeled approximately by
>> lumped, ideal components. I am interested in understanding what is
>> actually going on inside the distributed device.
>
>
> I'm sorry I haven't explained this better. If we start with the inductor
> in, say, the example antenna on Cecil's web page, we see that the
> magnitude of current at the top of the inductor is less than at the
> bottom of the inductor. Cecil has promoted various theories about why
> this happens, mostly involving traveling wave currents and "replacement"
> of "electrical degrees" of the antenna. He and others have given this as
> proof that the current at the two ends of an inductor are inherently
> different, regardless of its physical size.

I agree up till you add, "regardless of physical size". I have seen
him talk only about large air core space wound coils. I came to the
discussion late, but this is what I have seen.

> My counter argument goes
> something like this:
>
> 1. If we substitute a lumped component network for the antenna, there
> are no longer traveling waves -- along the antenna at least -- and no
> number of "missing electrical length" for the inductor to replace. Or if
> there is, it's "replacing" the whole antenna of 90 degrees. Yet the
> currents in and out of the inductor are the same as they were before. I
> feel this is adequate proof of the invalidity of the "replacement" and
> traveling wave arguments, since I can reproduce the same results with
> the same inductor without either an antenna or traveling waves. This is
> shown in the modified EZNEC file I posted.

But what is the need for such an argument? Just to prove that lumped
component networks can model real, distributed things? I get that.
As I see Cecil's point (and I hate to say this with him absent), it is
that real, large coils with all their poor turns coupling and stray
capacitance both turn to turn and more important, to ground, take a
lot of those lumped components to model, accurately, but only their
own self, described by distributed network concepts to model, accurately.

> 2. The argument that currents are inherently different at the ends of an
> inductor is shown to be false by removing the ground in the model I
> posted and replacing it with a wire. Doing so makes the currents nearly
> equal.

But the ground is there, in the application under discussion. All
components act differently if you connect them to something else.
This coil is connected to ground by its capacitance.

> 3. Arguments have then been raised about the significance of the wire
> and inductor length, and various theories traveling waves and standing
> waves within the length of the coil. Let's start with the inductor and
> no ground, with currents nearly equal at both ends. Now shrink the coil
> physically by shortening it, changing its diameter, introducing a
> permeable core, or whatever you want, until you get an inductance that
> has the same value but is infinitesimal in physical size. For the whole
> transition from the original to the lumped coil, you won't see any
> significant(*) change in terminal characteristics, in its behavior in
> the circuit, or the behavior of the whole circuit.

Sounds reasonable to me. But it is not the application in question.

> So I conclude there's
> no significant electrical difference in any respect between the physical
> inductor we started with and the infinitesimally small lumped inductor
> we end up with. And from that I conclude that any explanation for how
> the original inductor worked must also apply to the lumped one.

But only if you reduce the capacitance to ground to a low enough value.

> That's
> why I keep bringing up the lumped equivalents. We can easily analyze the
> lumped circuit with elementary techniques; the same techniques are
> completely adequate to fully analyze the circuit with real inductor and
> capacitance to ground.
>
> (*) I'm qualifying with "significant" because the real inductor doesn't
> act *exactly* like a lumped one. For example, the currents at the ends
> are slightly different due to several effects, and the current at a
> point along the coil is greater than at either end due to imperfect
> coupling among turns. But the agreement is close -- very much closer
> than the alternative theories predict (to the extent that they predict
> any quantitative result).

I have no argument with any of that.

(snip)
>> Or start with a less simplified theory that covers all cases, so you
>> don't have to decide when to switch tools.
>
>
> That's fine, too. Will Cecil's theory explain the behavior of a lumped
> constant circuit? Or everywhere along the transition between the
> physical inductor and lumped circuit I described above?

Distributed network theory includes the possibility of lumped
components, it is just not limited to them.

(snip)
>> (if you add to that model, the appropriate lumped capacitors at the
>> appropriate places)
>
>
> No. The inductor itself can be adequately modeled as a lumped inductor
> without any capacitors at all.

Not if it is located in close proximity to ground, as this coil in
question is located. It does not act like any kind of pure
inductance, but as a network that contains some inductance and also
some other effects.

> When you add ground to the model, you
> have to add the equivalent shunt C to the lumped model. The C isn't a
> property of the inductor itself; it's the capacitance between the
> inductor and ground.

That is a very strange statement to my mind. Stray capacitance is an
unavoidable effect that any real inductor in any real application will
have as a result of it having non zero size. A thing made of wire
that takes up space has inductive character and capacitive character,
and transmission line character, and loss, all rolled into one. You
can set the situation up that it finds itself in, is that some of
those properties not very significant, but that are all part of the
effect of a real, physical inductor. I don't understand why you keep
pretending that these non ideal effects are the fault of something
else. They are a result of the device taking up space and being made
of metal.

> This difference is the source of confusion and
> misunderstanding about the current -- the current we see at the top of
> the inductor is the current exiting the inductor minus the current going
> via the shunt C to ground. It's not due to a property of the inductor
> itself. We're seeing the *network* current, not the inductor current.

I agree. But a large, air core, spaced turn coil is a network, not a
pure inductance. This is just reality.

> Removing the ground lets us see the inductor current by itself.

Or, emphasizes that particular aspect of its nature.

>> Another reason to avoid that model, unless you are just looking for
>> the least amount of math to get an approximation. But computation has
>> gotten very cheap.
>
>
> The problem is that it obscures what's happening -- we can no longer
> easily tell which effects are due to the radiation, which are due to the
> capacitance, and which are inherent properties of inductance unless we

> separately analyze separate simplified circuits (as I did with EZNEC).
> And that's really what the whole disagreement has been about. Effects
> due to shunt capacitance have been claimed to be inherent properties of
> all inductors, and elaborately crafted theories developed to attempt to
> explain it. If all you want is numbers, they're plenty easy to get
> without the programmer needing to have the slightest understanding of
> what's happening. And he will have learned nothing he can apply to other
> situations.
>
> Distributed analysis is just fine, but it should predict the same coil
> currents with the antenna replaced by lumped components. And it should
> predict nearly equal currents in the inductor ends when ground is
> removed. And it should predict the same results when the coil and the
> shunt C to ground are replaced by lumped components. Because that's what
> really happens. My simplified lumped component analysis does all this. A
> rigorous solution of the fundamental equations for distributed networks
> does this also -- EZNEC does its calculations with just such equations
> and reaches the correct conclusions. But I don't believe that Cecil's
> theories and methods provide the correct results in all these cases.
(snip)

Sorry, here is where I have to withdraw. I can't say what Cecil is
thinking.

3480. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 01:53:24 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <oo1Vf.4876$HW2.3326@newsread3.news.pas.earthlink.net>
Source record: 62341

Hello, Richard.

Well, you certainly got the gist, without seeing the book, of the underlying problem I was having with phase, time, and distance. That was a helpful paradigm shift for me. I leanred a new word in the process, fungible. It was well used. I had thought about the sense of all this with respect to direction finding, but you added some extras.

Ultimately, I'm trying to comprehend, via a proof, that two receivers separated by a distance D can act as though they are a single receiver of size D. Perhaps it can be done by simply considering the Young double slit experiment. It bothers me that the idea is passed along without ever proving it. Maybe the proof is trivial.

Richard Clark wrote:

> On Fri, 24 Mar 2006 18:48:28 GMT, "W. Watson"
> <wolf_tracks@invalid.com> wrote:
>
>
>>There are several cases, which
>>involve fixed or differences in phase and amplitude he considers, Chap. 4,
>>sect. 4.2. Can anyone make the idea of phase dependency for an antenna,
>>particularly an isotropic antenna (or whatever), a little more practical or
>>real? Early on he talks about the phase delta being a function of (theta,
>>phi) according to a typical Kraus 3-D view of this material. A nice
>>abstraction, but I need something a little more concrete*.
>
>
> Hi Wayne,
>
> Not having that reference in front of me, I will wing what appears to
> be the topic at hand.
>
> When you have two detectors that are resolving one source, or when you
> have two sources that are impinging on one detector; then you have the
> makings of triangulation. I hope that much of the 3-nature of this
> problem reduced to its simplest terms is apparent.
>
> For the sake of discussion, we can call them X, Y, and A; where the
> pairing of the X-Y are the two that are similar and A is the odd one
> out.
>
> The distance XA can be expressed in meters, phase, or time. Similarly
> the distance YA can be expressed in meters, phase, or time. Going

> further, the distance XY can be expressed in meters, phase, or time.
> The units of meters, phase, and time are all fungible. That means
> they substitute equally as long as you take care to use the same units
> throughout. Whenever you read distance, think phase instead, or
> convert to phase. Even though they are the same, meters or seconds
> just aren't as useful in our discussion.
>
> When you mathematically combine these distances, you can precisely
> described the signal strength at any point (including those points not
> described as A, X, or Y).
>
> Take a simple DC example of X being a positive charge of 1, and Y
> being a negative charge of 1. If A lies on a line that is between the
> two, and is perpendicular to their axis, then A will sense a
> difference of 0. If you move A out of this perpendicular plane, it
> will encounter non-zero fields because the contribution of the two
> charges do not cancel fully. This moving of A throughout space will
> map out what is called "the dipole moment" which looks like a figure
> 8.
>
> Extend this analogy to the RF by simply stating that X and Y are 180ï¿½
> out of phase. In the first position of A, it will still resolve a 0
> difference (the two paths XA and YA are equal by definition and the
> phase is bucking - net 0 signal). Move A out of its perpendicular
> plane and the two path distances will be non equal. A small signal
> will emerge from the combination of the two XY signals.
>
> Push this analogy a little more by slightly changing the phase of
> either X or Y. A at its original position will now perceive two out
> of phase signals, but their phase difference will yield a small signal
> response.
>
> If you move A to the correct spot (out of the plane of
> perpendicularity), you may find that null again. Thus THAT null
> occupies a region that satisfies the combination of a resultant phase
> of 180ï¿½. This is accomplished by shifting the
> XA distance - YA distance
> expressed in terms of phase such that when added to the XY phase
> yields 180ï¿½.
>
> This last operation is called Beam Steering, you moved the null in
> 3-space using only phase shift at one X or Y. You could have as
> easily moved X or Y too to accomplish nearly the same result. You can
> also steer the point of maximum (the anti-null) - and did. If you
> flip the roles of the source and detector, you have source location.
>
> You can also achieve some steering through amplitude shifts of XY, but
> this is bringing more complexity to the topic. Suffice it to say that
> this math of combining amplitudes and phases for Beam Steering or
> source triangulation applies equally to source/detectors as it does to

> detector/sources.
>
> With two sources/detectors XY, there are ambiguous results. The nulls
> occupy two regions, not one. If you add a non co-planar third
> source/detector XYZ, then you can resolve without ambiguity (or
> perhaps less). This is still a matter of combining distances to A in
> terms of meters, time, or phase.
>
> The Method of Moments used by NEC is simply (ironically, more complex)
> the substitution of many, many sources in the place of segments of an
> antenna's structure. That is, a MOM dipole is composed of perhaps a
> dozen infinitesimal radiators in a line, with each having a phase
> shifted signal of a different amplitude. Their combination at a
> distance gives us that "Dipole Moment" (figure 8 field) that is so
> familiar. The utility of the MOM is you can shape up to several
> hundred or thousand sources into a complex geometry to present a more
> complex field resultant. NEC is merely a phase/distance/time
> combining engine that moves A throughout space to build a response
> map.
>
> To this last point, it reveals a truism:
> The entire radiator emits, not just a portion of it.
>
> The "entire" radiator consists of the antenna, its counterpoise, its
> loading, and sometimes its feedline.
>
> Another truism arises:
> The entire radiator emits in all directions (think spherically).
>
> Remote detectors are illuminated by a radiator no matter where they
> might lie. That they may not sense this illumination is merely the
> consequence of overlapping, bucking phases.
>
> One might be tempted to say that for the classic dipole, there is no
> radiation off the ends. The second truism negates that. You need
> only flip the phase of one half of the dipole to make it endfire (yes,
> easier said than done). In the first, classic sense both sides
> illuminate far colinear objects destructively. In the second sense
> both sides illuminate far colinear objects constructively.
>
> 73's
> Richard Clark, KB7QHC

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"Nature invented space so that everything didn't
have to happen at Princeton." -- Martin Rees,
Britain's Royal Astronomer, in a lecture at Princeton

Web Page: <home.earthlink.net/~mtnviews>

3481. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:04:06 UTC
From: w8ji@akorn.net
Message-ID: <1143252246.469232.200880@i40g2000cwc.googlegroups.com>
Source record: 62342

John Popelish wrote:

> But what is the need for such an argument? Just to prove that lumped
> component networks can model real, distributed things? I get that.
> As I see Cecil's point (and I hate to say this with him absent), it is
> that real, large coils with all their poor turns coupling and stray
> capacitance both turn to turn and more important, to ground, take a
> lot of those lumped components to model, accurately, but only their
> own self, described by distributed network concepts to model, accurately.

Cecil's point is rather obscure, but as I read it Cecil thinks the ONLY
way to model a loaded antenna is through reflected wave theory.

As I understand what Cecil writes, he seems to be saying if we use a
current meter we cannot measure current. If we look at an inductor's
properties he seems to say they change in the presence of standing
waves. He also seems to be saying a loading inductor replaces a certain
number of electrical degrees through some reflection property.

What most others seem to be saying is an inductor is an inductor. It
behaves the same way and has the same characteristics no matter how it
is used, so long as we don't change the displacement currents by
varying capacitive coupling to surroundings.

That is where the difference is.

I can easily build a loading coil that has no appreciable change in
current from end-to-end. My measurements of typical loading coils shows
it is the ratio of load (termination) impedance to capacitance to the
outside world that controls any difference in current, and not the
"electrical degrees" the coil replaces. It is also not the reflected
waves that cause the unequal currents, but rather the fact the inductor
has distributed capacitance to earth or other objects besides the coil.

Capacitance from the coil to itself won't cause these problems. The
change in phase of current at each end of a coil would depend heavily
on stray C of the coil to the outside world as compared to reactance of
the coil, and it would also depend on less than perfect flux linkage
across the inductor.

I measured a typical inductor and found it did have more phase delay in
current at each terminal than the actual spatial length of the coil
form would indicate. I measured a delay about equal to double the
length of the 10 inch coil form length. If the inductor was perfect,
the delay would be about equal to light speed across the length of the
inductor form.

The only thing in all of this I can't find agreement with is what Cecil is saying. I'm not disputing currebnt can be different, and phase can be different. What I am disputing are Cecil's claims that an inductor behaves differently in an antenna than in a lumped system that represents the antenna, and that the cause of inequality in currents or phase delay is caused by reflected waves and cannot be understood without applying reflected wave theory.

In my experience, either lumped circuits or reflected waves will work IF applied correctly.

This is my take of the disagreement.

73 Tom

3482. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:14:57 UTC
From: w8ji@akorn.net
Message-ID: <1143252897.745883.44290@v46g2000cwv.googlegroups.com>
Source record: 62344

> Caveat Lector wrote:
> > Here is a site for examples of capture areas of antennas
> >
> > http://www.sommerantennas.com/gain.html

>John Popelish wrote:
> Have you got a link to a similar site that covers ferrite rod antennas?

I hope this question isn't taken the wrong way, but why would you want
a similar site? That one is terrible for accuracy. The poor fellow who
wrote that page doesn't even know what capture area is.

Wouldn't it be better to find a totally different type of site, one
that at least has some technical accuracy?

73 Tom

3483. Re: Lets try this one

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:24:13 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <12299slb8c8iu6e@corp.supernews.com>
Source record: 62343

Butch Magee wrote:
> http://rys.nl/wfl.html
>
> this oughta wurk
No it didn't good heavens! No No, Good Cecil, I'm going direct to you
Cecil, you have to answer the question (s)

3484. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:31:29 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <7LidncJCoNbiNrnZRVn-iA@comcast.com>
Source record: 62346

Coaxial-colinear.

KG0WX wrote:

> http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>
> The author calls it a sector antenna but I'm sure I've seen it in ham
> applications but with another name.
>
> Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?
>
> Thanks for the help!
>
> Ken KG0WX
>

3485. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:31:48 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <mn692254jiiapil1a4gd49sdnsghrokjt2@4ax.com>
Source record: 62348

On Fri, 24 Mar 2006 20:13:26 -0500, John Popelish <jpopelish@rica.net>
wrote:

>>He and others have given this as
>> proof that the current at the two ends of an inductor are inherently
>> different, regardless of its physical size.
>
>I agree up till you add, "regardless of physical size". I have seen
>him talk only about large air core space wound coils. I came to the
>discussion late, but this is what I have seen.

Hi John,

One of the problems is the thread discussion is freely mixed with
practical observations and theoretical arguments - these can clash,
especially when mixed indiscriminately to prove one point.

First, several years ago, came the shocking observation that the
current into a coil is not the same as the current out of it.
Somewhere along the debate, this practical measurement was then
expressed to be in conflict with Kirchhoff's theories. However,
Kirchhoff's current law is for currents into and out of the same point
intersection, not component. The association with a point is found in
that the "lumped" inductance is a dimensionless load. The association
with Kirchhoff was strained to fit the load to then condemn the load
instead of simply rejecting that failed model and using the correct
one.

The problem came from incorrectly specifying the coil in EZNEC which
offers a coil generator (inductor) in the wires table as well as a
coil specification (inductance) in the loads table. This shocking
difference between model and observation would have been easily
resolved by simply using the coil generator (inductor) in place of the
lumped equivalent (inductance).

How do you know when you've made a mistake in application? You do two
designs and compare each to what nature provides. You discard the
model that does not conform to nature.

Want to know what the difference is between the two (the good and the
bad design) at the far receiver? ï¿½.32dB Hence the name of my thread
"Current through coils - BFD."

...snip

>But the ground is there, in the application under discussion. All
>components act differently if you connect them to something else.

>This coil is connected to ground by its capacitance.

Roy's point is that the proposed "theory," as Ian has also pointed out, has to correctly answer all scenarios, not just one. We don't have enough shelf space in libraries that prove the resistance of each resistor constructed - one formula does quite well for 99.999% of them, and a couple more formulas for those that don't (and those new formulas will give the same answer for the first 99.999% as well).

>> When you add ground to the model, you
>> have to add the equivalent shunt C to the lumped model. The C isn't a
>> property of the inductor itself; it's the capacitance between the
>> inductor and ground.
>
>That is a very strange statement to my mind. Stray capacitance is an
>unavoidable effect that any real inductor in any real application will
>have as a result of it having non zero size.

You are mixing an observational fact with a theoretical statement. The lumped model contains ONLY inductance, to make it conform to nature, as Roy is doing here, you have to add in all the nasty bits.

OR

Build a helix (inductor) in the wires table.

>A thing made of wire
>that takes up space has inductive character and capacitive character,
>and transmission line character, and loss, all rolled into one.

These are all properties that reside in a helix (inductor) constructed in the wires table. Some of these properties (like inductance) also reside in the load table, but not the capacitance to earth. If it matters, it is up to you to make the correct choice.

...snip

Well, the rest was more conflict between theory and practice that is and has been resolvable for a long time. Even the conflict is separable. For those who persist in making poor choices, they will always have either a problem with a model, or the genesis of a new theory, or rattle on beyond 500 posts - sometimes all three.

73's
Richard Clark, KB7QHC

3486. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:33:53 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <0aCdnVWxsrAsN7nZRVn-sw@adelphia.com>
Source record: 62345

w8ji@akorn.net wrote:
>>Caveat Lector wrote:
>>
>>>Here is a site for examples of capture areas of antennas
>>>
>>>http://www.sommerantennas.com/gain.html
>
>
>>John Popelish wrote:
>>Have you got a link to a similar site that covers ferrite rod antennas?
>
>
> I hope this question isn't taken the wrong way, but why would you want
> a similar site? That one is terrible for accuracy. The poor fellow who
> wrote that page doesn't even know what capture area is.

I meant a site that addressed (correctly, one would hope) that concept
of capture area for rod antennas.

> Wouldn't it be better to find a totally different type of site, one
> that at least has some technical accuracy?

Okay, I'll take one of those. :-)

3487. I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:41:05 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <4424ADC1.9050803@cableone.net>
Source record: 62347

(as usual, I'm in great need)

I have great problems in trying to post a photo/webpage to the group to help identify and discover dimentions to the "Wideband Folded Loop" that is somewhat described in the artical by RF-Systems Inc.

Cecil, if you would do a google search on this statement "WFL Folded Loop Antenna", it will bring up the aformentioned artical and photograph.

Upon printing the artical out, you will note that the web site is posted in the lower left hand of the page as is normal, however, if you enter that site it will send you to some off the wall site having nothing to do with antennas.

Now, grab your wireless laptop, hop on your hog and enjoy your hunt for my benefit.

3488. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:48:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1229bre2hd2pi16@corp.supernews.com>
Source record: 62349

What information are you looking for, capture area or effective height? Capture area determines how many watts you'll get into a conjugately matched load connected to the antenna. Effective height determines how many volts you'll get from an open circuited antenna. The two aren't directly related. For more information about the two topics, do a groups.google.com search for postings I've made on those topics in this newsgroup.

As I've posted here quite a number of times before, the capture area of a lossless infinitesimally short dipole is very nearly as great as that of a half wave dipole, in their most favored directions. (The difference is about 10%, and it's due to the slight pattern shape difference caused by different current distributions). So except for loss the capture area of a ferrite rod antenna is within 10% of that of a dipole. But loss in a ferrite rod antenna will reduce the capture area considerably. If you're interested in knowing how much power you can get from a ferrite rod, then, what you need to know is its efficiency, which is a function of wire length, number of turns, and the antenna feedpoint impedance. I don't have the time right now to work it out for you.

The effective height of a ferrite rod antenna is approximately:

(2 * pi * mueff * N * A) / lambda

where

mueff = effective relative permeability of the rod (mainly a function of rod length)
N = number of turns
A = rod cross sectional area
lambda = wavelength

Roy Lewallen, W7EL

John Popelish wrote:
> w8ji@akorn.net wrote:
>>> Caveat Lector wrote:
>>>
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>>>>
>>>> http://www.sommerantennas.com/gain.html
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>>
>>> John Popelish wrote:
>>> Have you got a link to a similar site that covers ferrite rod antennas?
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>> I hope this question isn't taken the wrong way, but why would you want
>> a similar site? That one is terrible for accuracy. The poor fellow who
>> wrote that page doesn't even know what capture area is.
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> I meant a site that addressed (correctly, one would hope) that concept
> of capture area for rod antennas.
>
>> Wouldn't it be better to find a totally different type of site, one
>> that at least has some technical accuracy?
>
> Okay, I'll take one of those. :-)
>

3489. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 02:49:38 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <0db922h6hi32du50lngi3bm7rprivqdijl@4ax.com>
Source record: 62350

On Sat, 25 Mar 2006 01:53:24 GMT, "W. Watson"
<wolf_tracks@invalid.com> wrote:

>Ultimately, I'm trying to comprehend, via a proof, that two receivers
>separated by a distance D can act as though they are a single receiver of
>size D. Perhaps it can be done by simply considering the Young double slit
>experiment. It bothers me that the idea is passed along without ever proving
>it. Maybe the proof is trivial.

Hi Wayne,

The two receivers/antennas is called "synthetic aperture." You can
observe the same thing with one antenna that is moving, we commonly
call it "picket fencing." This effect is due to reflections and
direct signals interfering constructively and destructively as you
move through the interference field. The math for that alone is found
in "Fresnel loss."

The Young double slit IS the proof in that it contains all the math
you need. It contains two transcendental operations (sin or cos) as
many thetas as there are phases and distances, some magnitude
information, and the result pops out at you.

In fact, the math is all the same for all of these effects.

73's
Richard Clark, KB7QHC

3490. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 03:12:15 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HK6dnX3ImNEtLrnZnZ2dnUVZ_vSdnZ2d@adelphia.com>
Source record: 62351

Roy Lewallen wrote:
> What information are you looking for, capture area or effective height?

Since I wasn't even aware that effective height applied to rod
antennas (or exactly what effective height means) I guess I was
thinking of capture area.

> Capture area determines how many watts you'll get into a conjugately
> matched load connected to the antenna.

That's it.

> Effective height determines how
> many volts you'll get from an open circuited antenna.

Does that include an antenna that has been brought to resonance with
an appropriate capacitive load?

> The two aren't
> directly related. For more information about the two topics, do a
> groups.google.com search for postings I've made on those topics in this
> newsgroup.

Thanks.

> As I've posted here quite a number of times before, the capture area of
> a lossless infinitesimally short dipole is very nearly as great as that
> of a half wave dipole, in their most favored directions. (The difference
> is about 10%, and it's due to the slight pattern shape difference caused
> by different current distributions). So except for loss the capture area
> of a ferrite rod antenna is within 10% of that of a dipole. But loss in
> a ferrite rod antenna will reduce the capture area considerably.

So if a very small rod antenna had a lossless core that could handle
any flux level, and was wound with superconductor, it could couple
into the same volume of space as a 1/2 wave dipole? Amazing.

> If
> you're interested in knowing how much power you can get from a ferrite
> rod, then, what you need to know is its efficiency, which is a function
> of wire length, number of turns, and the antenna feedpoint impedance. I
> don't have the time right now to work it out for you.
>
> The effective height of a ferrite rod antenna is approximately:
>
> (2 * pi * mueff * N * A) / lambda
>

> where
>
> mueff = effective relative permeability of the rod (mainly a function
> of rod length)
> N = number of turns
> A = rod cross sectional area
> lambda = wavelength

I can apply this formula directory to what I am experimenting with,
except that I have to approximate mueff. I am making the rod by
stacking ferrite beads, with various gaps between them. Can I
approximate mueff by taking the ratio of coil inductance with and
without the rod?

And, what if the rod area is not constant all along the rod? Since my
rods are assembled from pieces, I have a lot of freedom in this direction.

3491. Re: V Beam, do they work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 03:20:08 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <1229di3ihv4gu3b@corp.supernews.com>
Source record: 62352

Dear Tom:

It appears that you are investigating a slopping, V-beam with a feed point at about 90 meters and an operating frequency of, say, 1.82 MHz. When first used some 80 years ago, V-beams were horizontal (or, alternatively, entirely in a vertical plane). Two more 90 meter poles are not likely to be in the picture.

The good news is that you are apparently interested in a narrow range of frequencies. That is good news because aligning the lobes with their changing polarization and orientation over a significant bandwidth is like composing something to compete with Mozart.

Even using one frequency, it is a bear to get a slopping V to do one's bidding. I would limit lengths to integer multiples of 0.5L that could fit your farm. I would optimize a single, end fed wire (over ground) and in the process find a narrow range of lengths that look promising and that fit your site. Then add, and drive, the second wire. Iteration is called for. I would use a figure of merit that is the gain at a TOA of something like 30 degrees.

Kraus, even in the first edition, presents several approximate equations to optimize a horizontal rhombic. They may give a little guidance. I think I read a Technical Report in the mid 60s on measurements of a sloping V put out by either NBS or ESSA. I seem not able to put my finger on it just now.

As mentioned, the difficulty with sloping wires is finding a "good" bore-site addition of fields from the two wires when those fields are, to a first approximation, in the shape of cones with changing polarization. It is more easy with horizontal wires.

If I live long enough to retire from teaching, this is a type of project that would be interesting to investigate. But I only have 42 years in and my good wife is certain that I could not stand the pace of retirement. Do let us know what you come up with. Good luck.

73, Mac N8TT

Two side notes: My friend, HS and University classmate, and great DXer W8TWA has used a set of sloping V-beams on HF to good effect. -- As you know better than almost anyone, one needs a height in the neighborhood of 2L to get serious signals from a horizontally polarized antenna at the lower TOAs used for DX. You may find that your best sloping V-beam has a strong vertically polarized component in the main beam.

3492. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 04:45:35 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <MV3Vf.14157$6a1.12021@fed1read04>
Source record: 62353

"John Popelish" <jpopelish@rica.net> wrote in message
news:baadnc0L3JPQDbnZRVn-ig@adelphia.com...
> Caveat Lector wrote:
>> Here is a site for examples of capture areas of antennas
>>
>> http://www.sommerantennas.com/gain.html
>
>
> Have you got a link to a similar site that covers ferrite rod antennas?

Try URL:

http://www.st-andrews.ac.uk/~jcgl/Scots_Guide/RadCom/part7/page5.html

Some others using Google
--
CL -- I doubt, therefore I might be !

3493. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 05:16:49 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1229ki3gldocjbb@corp.supernews.com>
Source record: 62354

Thanks, Tom and Richard. I've said what I want to say in just about every way I can possibly think of, and without a great deal of success in communicating to John what I mean. I hope you'll have better luck -- I've run out of different ways to say it. I hope some of the readers, at least, have understood what I've been saying.

Roy Lewallen, W7EL

3494. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 05:38:25 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1229lqj751hcv09@corp.supernews.com>
Source record: 62356

John Popelish wrote:
> Roy Lewallen wrote:
> . . .
>> Effective height determines how many volts you'll get from an open
>> circuited antenna.
>
> Does that include an antenna that has been brought to resonance with an
> appropriate capacitive load?

No. "Open circuited" means that there's nothing connected across the feedpoint.

> . . .
> So if a very small rod antenna had a lossless core that could handle any
> flux level, and was wound with superconductor, it could couple into the
> same volume of space as a 1/2 wave dipole? Amazing.

Yes, exactly the same volume of space, although capture area isn't a measure of this. Capture area is an area, not a volume, and it's different in all directions, just like gain. In fact, there's a 1:1 correspondence between capture area and gain, they're just different ways of expressing the same thing. In the absence of loss, all the power applied to *any* antenna will radiate, so the integral of the power density over all directions is the same for all lossless antennas -- the integral of the power density will equal the applied power, since there's no dissipation (and in the far field the power density is simply E^2 / Z0 = H^2 * Z0 where Z0 is the impedance of free space and E and H are the electric and magnetic field strengths respectively). The reciprocal of this principle is that the integral of capture areas in all directions (what you're calling the "volume" the antenna is "coupling" to) is the same for all lossless antennas.

But more directly to the point, your tiny theoretical rod antenna would have a gain of about 0.45 dB less than a half wave dipole, and its capture area would be correspondingly smaller -- about 10%. This is assuming you're looking in the best direction for each antenna. Because the total radiated power or integral of the capture areas must be the same for the two antennas, this means that the tiny antenna has to have more gain or capture area than the dipole in some other directions. And indeed it does -- the tiny antenna has slightly fatter lobes than the half wave dipole. This is a good experiment to run with EZNEC or NEC-2. The EZNEC demo is adequate. Use free space, set wire loss to zero, and compare the gains and patterns of a half wave dipole to a very short one. The Average Gain tells you the ratio of total radiated power to input power, and it should equal one if the program is doing its

calculations correctly.

>> If you're interested in knowing how much power you can get from a
>> ferrite rod, then, what you need to know is its efficiency, which is a
>> function of wire length, number of turns, and the antenna feedpoint
>> impedance. I don't have the time right now to work it out for you.
>>
>> The effective height of a ferrite rod antenna is approximately:
>>
>> (2 * pi * mueff * N * A) / lambda
>>
>> where
>>
>> mueff = effective relative permeability of the rod (mainly a
>> function of rod length)
>> N = number of turns
>> A = rod cross sectional area
>> lambda = wavelength
>
> I can apply this formula directory to what I am experimenting with,
> except that I have to approximate mueff. I am making the rod by
> stacking ferrite beads, with various gaps between them. Can I
> approximate mueff by taking the ratio of coil inductance with and
> without the rod?

Yes. That's exactly what it is.
>
> And, what if the rod area is not constant all along the rod? Since my
> rods are assembled from pieces, I have a lot of freedom in this direction.

That one I don't know the answer to.

Roy Lewallen, W7EL

3495. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 05:39:18 UTC
From: Owen Duffy <owen@no.where>
Message-ID: <99l9221e8h4djdls7l4jgu1d8dt3avfv5q@4ax.com>
Source record: 62355

On Sat, 25 Mar 2006 01:09:06 GMT, Owen Duffy <owen@no.where> wrote:

>On Fri, 24 Mar 2006 06:57:21 -0800, "Caveat Lector"
><UALLBeware@9984reader.com> wrote:
>
>>Here is a site for examples of capture areas of antennas
>>
>>http://www.sommerantennas.com/gain.html
>
>
>Are you recommending it?

Unanswered...

>
>Is the following statement from the page correct?
>
>"Note: Antenna B has only half the capture area of antenna A and is
>therefore able to "catch" only 50 percent of the electromagnetic
>field; e.g., 50mV, compared to 100 mV/50 Ohms. This means 6dB less
>gain for antenna B in comparison to antenna A."

Of course it is not.

The article seems based on some typical misconceptions about Capture Area and the suggestion that you can run a ruler over a dipole (loaded or otherwise) to measure up and calculate the capture area is nonsense.

I wonder if that is how Somner derive the gain figures that they publish for their antennas. (Gain is related to Capture Area, and if they don't understand Capture Area, do they understand Gain?)

Owen
--

3496. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 06:26:28 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <iMydnYxGj92ofLnZnZ2dnUVZ_vudnZ2d@adelphia.com>
Source record: 62357

Roy Lewallen wrote:
> Thanks, Tom and Richard. I've said what I want to say in just about
> every way I can possibly think of, and without a great deal of success
> in communicating to John what I mean. I hope you'll have better luck --
> I've run out of different ways to say it. I hope some of the readers, at
> least, have understood what I've been saying.

I want to thank you for the efforts and patience with me. I hope my insight into the operation of large air core inductors has improved because of it. Please do not think that I am taking up a defense of everything Cecil thinks (since I am sure I don't know what that is, anyway), but just found this technical discussion stimulating. It isn't often I get to talk with such experienced people without getting dismissed or ignored. It has been useful to me. I can't think of a better compliment to offer.

3497. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 06:36:30 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143268590.827802.186830@i39g2000cwa.googlegroups.com>
Source record: 62359

Tom, the W8JI one, wrote, among other things,
"Capacitance from the coil to itself won't cause these problems. The change in phase of current at each end of a coil would depend heavily on stray C of the coil to the outside world as compared to reactance of the coil, and it would also depend on less than perfect flux linkage across the inductor."

I've lost track of exactly what "these problems" are, but I was wondering about the "and it would also depend on less than perfect flux linkage across the inductor" part. To help resolve that, I did a Spice simulation; I modelled a transmission line with ten "L" sections cascaded. Each was 1uH series, followed by 100pF shunt to ground. I put a 100 ohm load on one end and fed the other end with a 2.5MHz sine wave with 100 ohms source resistance. Sqrt(LC) is 10 nanoseconds per section, so I expect 100 nanoseconds total delay, or 90 degrees at 2.5MHz. That's what I saw. Then I added unity coupling among all the coils, and to keep the same net inductance, I decreased each inductor to 100nH. The result was STILL very close to a 90 degree phase shift, with a small loss in amplitude. In each case, the current in each successive inductor shifts phase by about 1/10 the total. Although the simulation is less than a perfect match to a completely distributed system with perfect flux linkage (and just how you do that I'm not quite sure anyway...), but it's close enough to convince me that perfect flux linkage would not prevent behaviour like a transmission line, given the requisite distributed capacitance.

(That was from a "transient" simulation, 10usec after startup so it should be essentially steady-state; but I'll probably play with an AC sweep of both cases as I find time.)

Cheers,
Tom

3498. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 06:40:45 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <9fqdnRD385oTebnZRVn-gQ@adelphia.com>
Source record: 62358

Roy Lewallen wrote:
> John Popelish wrote:
>
>> Roy Lewallen wrote:
>> . . .
>>
>>> Effective height determines how many volts you'll get from an open
>>> circuited antenna.
>>
>>
>> Does that include an antenna that has been brought to resonance with
>> an appropriate capacitive load?
>
>
> No. "Open circuited" means that there's nothing connected across the
> feedpoint.

But I can design the coil to be self resonant or not, just by adjusting the surface area of the wire, or the spacing. It is non intuitive that if I peak the coil this way, and obtain more voltage, it is a different case than if I peak the coil with cable capacitance, or an additional capacitor. I guess I really don't comprehend the point of this value.

(Snip excellent review of basic lossless radiator. Thank you.)

> But more directly to the point, your tiny theoretical rod antenna would
> have a gain of about 0.45 dB less than a half wave dipole, and its
> capture area would be correspondingly smaller -- about 10%. This is
> assuming you're looking in the best direction for each antenna. Because
> the total radiated power or integral of the capture areas must be the
> same for the two antennas, this means that the tiny antenna has to have
> more gain or capture area than the dipole in some other directions. And
> indeed it does -- the tiny antenna has slightly fatter lobes than the
> half wave dipole.

I understand what you are saying.

(snip)
>>> The effective height of a ferrite rod antenna is approximately:
>>>
>>> (2 * pi * mueff * N * A) / lambda
>>>
>>> where
>>>
>>> mueff = effective relative permeability of the rod (mainly a

>>> function of rod length)
>>> N = number of turns
>>> A = rod cross sectional area
>>> lambda = wavelength
>>
>>
>> I can apply this formula directory to what I am experimenting with,
>> except that I have to approximate mueff. I am making the rod by
>> stacking ferrite beads, with various gaps between them. Can I
>> approximate mueff by taking the ratio of coil inductance with and
>> without the rod?
>
>
> Yes. That's exactly what it is.

Well, now I can calculate the effective height of my antennas, even
though I am not sure what it has to do with height.

>> And, what if the rod area is not constant all along the rod? Since my
>> rods are assembled from pieces, I have a lot of freedom in this
>> direction.
>
>
> That one I don't know the answer to.

I am also experimenting with designs that do not necessarily have a
small, coil, close to the rod. (My interest in the discussion of
extended coils is showing.) One of the possibilities that shows a
significant increase in tuned Q is an hour glass shaped coil (small
diameter in the center, but sweeping to a larger diameter at the
ends). I have been asked to try putting a rod through the center of a
flat spiral coil. It seems to me that, at some extreme, the above
formula will fail, because it assumes that essentially all the signal
energy exiting the coil was collected by the rod, and that the signal
the coil would collect by itself would be insignificant. But if my
coils get large enough, they become loop antennas in their own right,
and the rod, though it may have a significant length and area, is only
a part of what is happening. In other words, the mueff can get pretty
small, even though the rod has significant dimensions. I guess, what
I am asking are what assumptions about coil dimensions (that are not
explicitly referenced in the formula) are being made in the above formula?

3499. Re: Attic antenna: rotator upside-down work?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 07:08:08 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <s%5Vf.241$I%6.45@fed1read12>
Source record: 62360

```
"Tam/WB2TT" <t-tammaru@c0mca$t.net> wrote in message
news:Vqudnf9CWO80gLnZnZ2dnUVZ_vidnZ2d@comcast.com...
>
> "kd5sak" <kd5sak@sbcglobal.net> wrote in message
> news:W0UUf.62864$dW3.6557@newssvr21.news.prodigy.com...
> >
> > "Buck" <not@this.time> wrote in message
> > news:q018221rrlqsgfcu60j6qp6ktn00q2tktu@4ax.com...
> >>
> >>>
> >>> BB> Will an antenna rotator like a Radio Shack or Channel Master work
if
> >>> BB> hung upside-down from a roof beam, or should I try to come up with
a
> >>> BB> way to secure it to the attic floor?
> >>>
> >>>
> >>
> >> Do you have a break-down of the assembly of the rotor? If there are
> >> no bearings when held upside down, you may damage the rotor by hanging
> >> it that way.
> >>
> >> Buck
> >> --
> > Don't know about some of the newer inexpensive TV type rotors, but my
old
> > AR-40 has lubricated ball bearings running in a groove. Don't know if
> > running that upside down would
> > be a problem or not. I believe I'd work out an attic floor mount that
> > would allow it to operate in the normal orientation. If cost is not a
> > priority, however, running it upside down might make for an interesting
> > experiment.
> >
> > Harold
> > KD5SAK
> I don't think it will work right. There will be no force on the ball
> bearings at all, they will just be floating. All the friction will show up
> on whatever is on the other end of the shaft that keeps the unit from
> falling apart.
>
> Tam/WB2TT
>
>
```

Caution, ancient history: In the early 1970's, I hung a rotor upside down in an attic. It only had a 4-bay bowtie UHF TV antenna on it, but it was rotated at least daily and never gave me a bit of trouble in about two years.

No, I don't recall the brand but it was the kind with the wirewound resistor and wiper for position information. Alliance may have been the company that did it that way.

John
KD6VKW

3500. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 07:19:59 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <1229rp3rlnlhgb6@corp.supernews.com>
Source record: 62361

John Popelish wrote:
> Roy Lewallen wrote:
>> John Popelish wrote:
>>
>>> Roy Lewallen wrote:
>>> . . .
>>>
>>>> Effective height determines how many volts you'll get from an open
>>>> circuited antenna.
>>>
>>>
>>> Does that include an antenna that has been brought to resonance with
>>> an appropriate capacitive load?
>>
>>
>> No. "Open circuited" means that there's nothing connected across the
>> feedpoint.
>
> But I can design the coil to be self resonant or not, just by adjusting
> the surface area of the wire, or the spacing. It is non intuitive that
> if I peak the coil this way, and obtain more voltage, it is a different
> case than if I peak the coil with cable capacitance, or an additional
> capacitor. I guess I really don't comprehend the point of this value.

Sorry, I don't understand what you're "peaking" and how. I believe that the formula I gave assumes that the coil is well below self resonance where the shunt capacitance is negligible. It won't be valid near self resonance, if that's what you mean.

> . . .
>
> Well, now I can calculate the effective height of my antennas, even
> though I am not sure what it has to do with height.

Do a groups.google.com search of this newsgroup for my postings containing "effective height" or "effective length" -- I posted quite a bit about it not long ago.

> . . .

> I am also experimenting with designs that do not necessarily have a
> small, coil, close to the rod. (My interest in the discussion of
> extended coils is showing.) One of the possibilities that shows a
> significant increase in tuned Q is an hour glass shaped coil (small
> diameter in the center, but sweeping to a larger diameter at the ends).
> I have been asked to try putting a rod through the center of a flat

> spiral coil. It seems to me that, at some extreme, the above formula
> will fail, because it assumes that essentially all the signal energy
> exiting the coil was collected by the rod, and that the signal the coil
> would collect by itself would be insignificant. But if my coils get
> large enough, they become loop antennas in their own right, and the rod,
> though it may have a significant length and area, is only a part of what
> is happening. In other words, the mueff can get pretty small, even
> though the rod has significant dimensions. I guess, what I am asking
> are what assumptions about coil dimensions (that are not explicitly
> referenced in the formula) are being made in the above formula?

I'm sorry, I don't know. The reference it came from doesn't say. It in
turn references Laurent, H.J. and Carvalho, C.A.B., "Ferrite Antennas
for AM Broadcast Receivers", an application note from Bendix
Corporation. That app note, if you can find it, might or might not tell.
I'm sure it's not valid anywhere near self resonance, though.

Your concept of signal energy getting collected separately by the rod
and the coil, or exiting the coil and being collected by the rod doesn't
fit at all with what I know of the behavior of electromagnetic fields,
so I won't even try to comment on that aspect or the conclusions
resulting from it. Maybe it makes sense to Cecil or art -- they seem to
view things in a different way.

Roy Lewallen, W7EL

3501. ads2004a help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 09:06:21 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143277581.009974.142470@v46g2000cwv.googlegroups.com>
Source record: 62362

1.i've got problem configuring my layout window of ads2004a.everytime i click for option>preferences, the window for that preference appears and then suddenly disappears.however,all other tabs works fine...please help

2.how can i insert vias?

thanks!

3502. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 10:01:07 UTC
From: w8ji@akorn.net
Message-ID: <1143280867.232067.290100@g10g2000cwb.googlegroups.com>
Source record: 62363

K7ITM wrote:
> cascaded. Each was 1uH series, followed by 100pF shunt to ground. I
> put a 100 ohm load on one end and fed the other end with a 2.5MHz sine
> wave with 100 ohms source resistance. Sqrt(LC) is 10 nanoseconds per
> section, so I expect 100 nanoseconds total delay, or 90 degrees at
> 2.5MHz. That's what I saw. Then I added unity coupling among all the
> coils, and to keep the same net inductance, I decreased each inductor
> to 100nH. The result was STILL very close to a 90 degree phase shift,
> with a small loss in amplitude. In each case, the current in each
> successive inductor shifts phase by about 1/10 the total. Although the
> simulation is less than a perfect match to a completely distributed
> system with perfect flux linkage (and just how you do that I'm not
> quite sure anyway...), but it's close enough to convince me that
> perfect flux linkage would not prevent behaviour like a transmission
> line, given the requisite distributed capacitance.

Thanks Tom,

That's very interesting. My thought is the difference in
phase-of-current at each of the inductor would be affected by mutual
coupling, with perfect coupling preventing phase differences in
current, but maybe that is shortsighted.

I'll have to think about that a while and how it might affect what I am
saying.

73 Tom

3503. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 11:18:17 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <15OdnT8zX_S4urjZRVnyrA@bt.com>
Source record: 62364

The phase shift in degrees, along a coil or any other sort of
transmission line, is fixed rigidly by its physical dimensions and
test frequency.

Phase shift is entirely independent of the way it is used, the circuit
it is in and the circuit currents which flow.

Reg. G4FGQ

3504. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 11:46:24 UTC
From: David J Windisch <davidjw@cinci.rr.com>
Message-ID: <k4aVf.55521$UZ5.10643@tornado.ohiordc.rr.com>
Source record: 62365

Butch, it's a folded-up length of folded-dipole sort-of with a
dummy-load/power-absorber in the center. RTMC for the disclaimers.
They're there, believe me.

To play with something like it more easily and inexpensively, attach a piece
of coax to your rig, put a dummy load at the far end, and connect a random
length of wire to the center conductor of the coax, at the dummy load. You
could connect a similar length of wire to the outer coax conductor . . . .
maybe a total of 7.5M of wire in your new terminated dipole ;o)

Hth. 73, Dave, N3HE

"Butch Magee" <lynyrd@cableone.net> wrote in message
news:4424ADC1.9050803@cableone.net...
> (as usual, I'm in great need)
>
> I have great problems in trying to post a photo/webpage to the group to
> help identify and discover dimentions to the "Wideband Folded Loop" that
> is somewhat described in the artical by RF-Systems Inc.
>
SNIP

3505. New Program. TRANCOIL

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 12:19:14 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <CsydnQSCZK_AqLjZRVnytA@bt.com>
Source record: 62366

Coils and transmission lines yet again.

For given coil dimensions, program TRANCOIL calculates numerical values for the line's primary constants Inductance, Capacitance and Resistance including radiation resistance.

Also the secondary constants of Characteristic Impedance Zo, Phase-shift, Velocity Factor and Attenuation.

Resonant frequencies and feedpoint impedance versus frequency are also calculated should the coil be used as an antenna.

Minor details such as wire length and wire gauge are included.

Input parameters can be varied from the keyboard and behaviour of the coil observed versus frequency and dimensions.

Download TRANCOIL in a few seconds from website below and run immediately.

Participants in the recent newsgroup marathon will be able to see and understand more clearly what it is they have been waffling about.

....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
....

3506. capacity hat antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 13:38:17 UTC
From: Buck <not@this.time>
Message-ID: <5oca22pqul1g15ua8sdu0oem5ebg1n2gr7@4ax.com>
Source record: 62367

(My information for this comes from a number of websites including commercial antenna sites. Needless to say, the accuracy of any information, especially that of commercial sites is suspect.)

I have been reading about reduced size antennas using capacity hats instead of, or in addition to, inductor loading. Most sites claim that capacity hats reduce size with much less (or no) signal loss compared to a full size antenna. At least one site claims a vertical 1/4 dipole using cap-hats has gain over a 1/4 vertical ground plane. The consensus seems to be that size for size, the antenna shortened by capacity hats has less loss than the same size antenna shortened by inductors as per http://www.sommerantennas.com/gain.html (taken from another thread in this newsgroup.)

Some claims are that the capacity hat antennas have equal signal strength to their full-sized counterparts.

My research, thus far, my theory is:

1) any shortened antenna will have some loss compared to its full-sized counterpart. (i.e. an 80 meter dipole shortened by one foot using capacity hats will not be as efficient as the full length version, even though one might be hard pressed to find the instrument that could measure it.)

2) antennas shortened with capacity hats have less loss than those shortened by inductors

3) capacity hat antennas exhibit slightly more bandwidth than inductor loaded antennas

4) given equal length, a cap-hat vertical dipole will exhibit equal, (or according to some sites, greater) signal strength to a vertical monopole either reduced or full-size.

Size Loss vs efficiency of a cap-hat dipole.

Assuming my first point of theory is correct, there must be a point in which the reduced size of a dipole using only capacity hats is noticeable. Continued reduction finds additional noticeable points of loss.

What I would like to know is approximately where those points might be so the 'value' of a cap-hat dipole antenna can be determined given some acceptable size or loss.

An example might be I have 25 feet of antenna pole. I can build an antenna with what I have. However, it may be that for ten more feet

of pole, I can have a much better signal. Should I use what I have, or order the additional ten feet of aluminum?

Another example would be to estimate the maximum power I can run on 60 meters using a given length antenna. If a 1/4 wave dipole will radiate almost as effectively as a 1/2 wave, then I would not worry about adding the extra 5 or ten watts I would need to max the ERP out, but if the loss were significant, I would know I can leave my radio on full power (100 watts) without committing a violation.

Thank you for your thoughts.

--
73 for now
Buck
N4PGW

3507. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 13:44:43 UTC
From: Buck <not@this.time>
Message-ID: <f7ia22dltheef6530ea9vg7aasfoehvtcq@4ax.com>
Source record: 62368

On Fri, 24 Mar 2006 12:07:31 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>Hi Wayne,
>
>Not having that reference in front of me, I will wing what appears to
>be the topic at hand.
>
>When you have two detectors that are resolving one source, or when you
>have two sources that are impinging on one detector; then you have the
>makings of triangulation. I hope that much of the 3-nature of this
>problem reduced to its simplest terms is apparent.
>

S N I P

>
>73's
>Richard Clark, KB7QHC

What's frightening is I think I understood all that....

Thanks for the explanation.

--
73 for now
Buck
N4PGW

3508. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 13:51:55 UTC
From: Buck <not@this.time>
Message-ID: <kmia225t93oadpa5b2knaostsvltpkls68@4ax.com>
Source record: 62369

On Fri, 24 Mar 2006 20:41:05 -0600, Butch Magee <lynyrd@cableone.net>
wrote:

>(as usual, I'm in great need)
>
>I have great problems in trying to post a photo/webpage to the group to
>help identify and discover dimentions to the "Wideband Folded Loop" that
>is somewhat described in the artical by RF-Systems Inc.
>
>Cecil, if you would do a google search on this statement "WFL Folded
>Loop Antenna", it will bring up the aformentioned artical and photograph.

S N I P

Your search - "WFL Folded Loop Antenna" - did not match any
documents.
--
73 for now
Buck
N4PGW

3509. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 13:55:00 UTC
From: Buck <not@this.time>
Message-ID: <7tia22p7jkk5orusbo24jju256ale47b0r@4ax.com>
Source record: 62370

On Sat, 25 Mar 2006 08:51:55 -0500, Buck <not@this.time> wrote:

>On Fri, 24 Mar 2006 20:41:05 -0600, Butch Magee <lynyrd@cableone.net>
>wrote:
>
>>(as usual, I'm in great need)
>>
>>I have great problems in trying to post a photo/webpage to the group to
>>help identify and discover dimentions to the "Wideband Folded Loop" that
>>is somewhat described in the artical by RF-Systems Inc.
>>
>>Cecil, if you would do a google search on this statement "WFL Folded
>>Loop Antenna", it will bring up the aformentioned artical and photograph.
>
>
>S N I P
>
>
>
>Your search - "WFL Folded Loop Antenna" - did not match any
>documents.

Found it: Wideband Folded Loop
--
73 for now
Buck
N4PGW

3510. Re: capacity hat antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 14:25:51 UTC
From: w8ji@akorn.net
Message-ID: <1143296751.570365.82850@z34g2000cwc.googlegroups.com>
Source record: 62371

Buck wrote:

> The consensus seems to be that size for size, the antenna shortened by
> capacity hats has less loss than the same size antenna shortened by
> inductors as per http://www.sommerantennas.com/gain.html (taken from
> another thread in this newsgroup.)

Buck,

First, that Sommer antenna site is terrible. There just isn't any other way to say it. Virtually nothing on that page is truthful in any way. I actually thought it was an April 1st joke at first.
So toss that info out.

> My research, thus far, my theory is:
>
> 1) any shortened antenna will have some loss compared to its
> full-sized counterpart. (i.e. an 80 meter dipole shortened by one
> foot using capacity hats will not be as efficient as the full length
> version, even though one might be hard pressed to find the instrument
> that could measure it.)

All other things being constant, if you starting end loading a 1/4 wl vertical antenna with a hat it would start having some gain. The gain might not be useful or important, but it would work that way.

I suggest you read:

http://www.w8ji.com/radiation_and_fields.htm

and the link to

http://www.w8ji.com/radiation_resistance.htm

Actually you could have a shorter antenna with more gain. It is possible, depending on current distribution and loss resistance distribution.

> 2) antennas shortened with capacity hats have less loss than those
> shortened by inductors

Probably true, but not always true..

> 3) capacity hat antennas exhibit slightly more bandwidth than inductor
> loaded antennas

It's more complex than that, but that's probably true in nearly all cases. They can have significantly more bandwidth in some cases.

> 4) given equal length, a cap-hat vertical dipole will exhibit equal,
> (or according to some sites, greater) signal strength to a vertical
> monopole either reduced or full-size.

Again it depends on the system. Vertical dipoles open a HUGE can of worms. Most of the problems surround feeding the antenna and not having the feedline couple to the radiator.

Also, with a good ground system and a given overall height radiator and given loading system, a Marconi has higher efficiency than a vertical dipole.

Some of the very worse verticals around are the "no ground half-wave" antennas, and some of those profess to have high efficiency. If amateur radio antennas were watched and protected like other consumer products, more than half the manufacturers would be sitting in jail for fraud.

> Assuming my first point of theory is correct, there must be a point in
> which the reduced size of a dipole using only capacity hats is
> noticeable. Continued reduction finds additional noticeable points of
> loss.
>
> What I would like to know is approximately where those points might be
> so the 'value' of a cap-hat dipole antenna can be determined given
> some acceptable size or loss.

It is a complex answer with many "maybes" and "if" statements. There isn't any exact cut-off point.

Modeling antenna will help you understand what happens. If you want to read, stay away from antenna manufacturer and off-beat amateur publications and go to peer reviewed textbooks. You might try Antenna and Transmission Lines by John Kuecken (I attended several of his classes back in the 70's) or the Antenna Engineering Handbook by Jasik.

Jasik's book would be available in good technical libraries and Kuecken book was reprinted by MFJ Enterprises.

More important than anything, you might learn how to model antennas in something like Eznec.

If you want to see what a joke most antenna manufacturer claims are, get a copy of Vertical Antenna Comparison by K7LXC and another fellow (N0AX?). It shows actual FS comparisons of magical amateur antennas.

73 Tom

3511. Re: capacity hat antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 14:34:56 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <g8udnYjCWYbcyLjZRVny2w@bt.com>
Source record: 62372

"Buck" <not@this.time> wrote in message
news:5oca22pqul1g15ua8sdu0oem5ebg1n2gr7@4ax.com...
> (My information for this comes from a number of websites including
> commercial antenna sites. Needless to say, the accuracy of any
> information, especially that of commercial sites is suspect.)
>
>
> I have been reading about reduced size antennas using capacity hats
> instead of, or in addition to, inductor loading. Most sites claim
> that capacity hats reduce size with much less (or no) signal loss
> compared to a full size antenna. At least one site claims a
vertical
> 1/4 dipole using cap-hats has gain over a 1/4 vertical ground plane.
> The consensus seems to be that size for size, the antenna shortened
by
> capacity hats has less loss than the same size antenna shortened by
> inductors as per http://www.sommerantennas.com/gain.html (taken from
> another thread in this newsgroup.)
>
> Some claims are that the capacity hat antennas have equal signal
> strength to their full-sized counterparts.
>
> My research, thus far, my theory is:
>
> 1) any shortened antenna will have some loss compared to its
> full-sized counterpart. (i.e. an 80 meter dipole shortened by one
> foot using capacity hats will not be as efficient as the full length
> version, even though one might be hard pressed to find the
instrument
> that could measure it.)
>
> 2) antennas shortened with capacity hats have less loss than those
> shortened by inductors
>
> 3) capacity hat antennas exhibit slightly more bandwidth than
inductor
> loaded antennas
>
> 4) given equal length, a cap-hat vertical dipole will exhibit equal,
> (or according to some sites, greater) signal strength to a vertical
> monopole either reduced or full-size.
>
>
>

> Size Loss vs efficiency of a cap-hat dipole.
>
> Assuming my first point of theory is correct, there must be a point
in
> which the reduced size of a dipole using only capacity hats is
> noticeable. Continued reduction finds additional noticeable points
of
> loss.
>
> What I would like to know is approximately where those points might
be
> so the 'value' of a cap-hat dipole antenna can be determined given
> some acceptable size or loss.
>
> An example might be I have 25 feet of antenna pole. I can build an
> antenna with what I have. However, it may be that for ten more feet
> of pole, I can have a much better signal. Should I use what I have,
> or order the additional ten feet of aluminum?
>
> Another example would be to estimate the maximum power I can run on
60
> meters using a given length antenna. If a 1/4 wave dipole will
> radiate almost as effectively as a 1/2 wave, then I would not worry
> about adding the extra 5 or ten watts I would need to max the ERP
out,
> but if the loss were significant, I would know I can leave my radio
on
> full power (100 watts) without committing a violation.
>
==========
Buck,

For the same reduction in height a top hat has greater efficiency than
a loading coil. It can amount to 3 or more decibels.

But a top hat gets in the way and is more unsightly than a coil.

Have you seen program TOPHAT available from website below.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

3512. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 15:59:09 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143302349.753974.322550@j33g2000cwa.googlegroups.com>
Source record: 62373

Of course, that's blatantly false, taken literally. A 2" diameter 10" long solenoid coil coaxially inside a 2.5" ID grounded conductive tube will not have the same phase shift as the identical coil inside a 5" ID grounded conductive tube, and neither will behave the same as the same coil included as a loading coil in Cecil's mobile antenna. It won't even have the same inductance in each case.

Before you say, "Give us a break, Tom. Of course it won't and clearly that's not what was meant," just consider how literally both the posters and the lurkers here take things.

AND in fact, as shown in the simulation I just reported on, the coupling between that coil and the magnetic fields of other nearby components does affect the performance of that coil. In general, when the fields, electric and magnetic, around any component interact with their environment, a change in that environment will change the behaviour of the component. Thankfully, we have a lot of components where that effect is minimal at the frequencies of interest, but we do need to take note of cases where the effect is important. I DAILY work with tiny components that DO behave differently, depending on their environment. At several GHz, seemingly small couplings can be very important.

Cheers,
Tom

3513. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 16:30:18 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <kLqdndVfjfYn87jZnZ2dnUVZ_vadnZ2d@adelphia.com>
Source record: 62374

K7ITM wrote:
(snip)

> To help resolve that, I did a Spice
> simulation; I modelled a transmission line with ten "L" sections
> cascaded. Each was 1uH series, followed by 100pF shunt to ground. I
> put a 100 ohm load on one end and fed the other end with a 2.5MHz sine
> wave with 100 ohms source resistance. Sqrt(LC) is 10 nanoseconds per
> section, so I expect 100 nanoseconds total delay, or 90 degrees at
> 2.5MHz. That's what I saw. Then I added unity coupling among all the
> coils, and to keep the same net inductance, I decreased each inductor
> to 100nH. The result was STILL very close to a 90 degree phase shift,
> with a small loss in amplitude. In each case, the current in each
> successive inductor shifts phase by about 1/10 the total. Although the
> simulation is less than a perfect match to a completely distributed
> system with perfect flux linkage (and just how you do that I'm not
> quite sure anyway...), but it's close enough to convince me that
> perfect flux linkage would not prevent behaviour like a transmission
> line, given the requisite distributed capacitance.
>
> (That was from a "transient" simulation, 10usec after startup so it
> should be essentially steady-state; but I'll probably play with an AC
> sweep of both cases as I find time.)

I look forward to your tests with turn-to-turn capacitance added to
the model as well. It will no longer match the 100 ohm source and
load over as wide a frequency range, but it will look closer to the
real thing above the self resonant frequency. You may be able to
measure the phase shift versus frequency up to resonance, and test
Cecil's idea that you can measure the self resonant frequency and use
that to predict the phase shift at much lower frequencies.

3514. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 16:37:32 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <6q2dnTHtzvH27bjZnZ2dnUVZ_tmdnZ2d@adelphia.com>
Source record: 62375

Roy Lewallen wrote:
(snip)
>
> Do a groups.google.com search of this newsgroup for my postings
> containing "effective height" or "effective length" -- I posted quite a
> bit about it not long ago.

Will do. Thanks.

3515. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 16:44:55 UTC
From: hayseed <hayseed@rainmaker.com>
Message-ID: <4425729f$0$10276$a82e2bb9@reader.athenanews.com>
Source record: 62176

Stolen from "Surfin' Bird" by the Kingsmen (of Louie-Louie fame).
See:
http://www.rockabilly.nl/lyrics4/s0130.htm

Cheers
Bob
KE7GNU

3516. Re: OOOooooohhhhhhhhhh, Get to my Question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 16:51:09 UTC
From: hayseed <hayseed@rainmaker.com>
Message-ID: <44257415$0$19327$a82e2bb9@reader.athenanews.com>
Source record: 62177

OOPS!!
Its the Trashmen!! Trashmen!! Not Kingsmen. No "Louie-Louie".

Donning asbestos suit, I remain....

Bob
KE7GNU

3517. Re: MATLAB CODE FOR IMPEDENCE MATCHING NETWORK

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 17:10:05 UTC
From: W3JDR <joe@roccis.com>
Message-ID: <NPeVf.1779$f21.1414@trnddc01>
Source record: 62178

Mahesh,

Unless you're trying to do a wideband match to a complex impedance, in this frequency range (2-29 MHZ), you really don't need a Smith Chart nor do you need Matlab. . All you need is a pencil & paper and a few very simple formulas.

If you can describe the impedances you're trying to match, the frequency range that the match has to work over, and the acceptable circuit losses, then it would be easier to point you to the best resource for the information you need.

Joe
W3JDR

"spmayya@yahoo.com" <mahesh.bidar@gmail.com> wrote in message news:1143205830.833926.219480@t31g2000cwb.googlegroups.com...
> HELLO, EVERY ONE I WANT A MATLAB CODE , FOR "DESIGNING A IMPEDENCE
> MATCHING NETWORK FOR HIGH FREQUENCY 2MHZ TO 29.9 MHZ" & its allied code
> like measuring L C R values & for smith chart help need badly urgent,
> thanks in advance with regards MAHESH
>

3518. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 17:32:04 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <leidnXAqrNau4LjZRVn-pQ@adelphia.com>
Source record: 62179

Is "height" in "effective height" really referring to effective radiating length, rather than something to do with elevation above ground (assuming that one is talking about a monopole above a ground plane)?

In other words, is the "effective height" of a horizontal dipole actually related to its end to end length, not its distance above ground?

I am just trying to get started on the right foot in my reading.

3519. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 17:43:08 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <g3gPxvEsEYJEFAUI@ifwtech.co.uk>
Source record: 62181

Richard Clark wrote:
>
>First, several years ago, came the shocking observation that the
>current into a coil is not the same as the current out of it. Somewhere
>along the debate, this practical measurement was then expressed to be
>in conflict with Kirchhoff's theories. However, Kirchhoff's current
>law is for currents into and out of the same point intersection, not
>component. The association with a point is found in that the "lumped"
>inductance is a dimensionless load. The association with Kirchhoff was
>strained to fit the load to then condemn the load instead of simply
>rejecting that failed model and using the correct one.
>

So much has been said in this debate - and this is at least the third or fourth re-make of the whole show - that I honestly cannot remember if the exact words that Richard reports were ever used.

If they were, then they were excessively condensed, skipping some essential steps in the explanation. Both sides of the debate have often been guilty of skipping details that seemed "obvious" (at least to their way of thinking) in order to get to their main point.

So please let me try to respond to Richard's criticism above. Since I don't want to skip anything this time, this is going to take a little longer.

If there's anything that someone doesn't agree with, please comment... but please read the whole thing first. Many of the problems with this debate are because people start to throw in comments before finding out where the original poster is heading. This destroys any kind of connected thinking, and reduces the "debate" into a series of disconnected nit-picks.

The main electrical property of the thing we call a "coil" or "inductor" is - obviously - inductance. But a real-life coil has many other properties as well, and these complicate the picture.

If we're going to understand loading coils at all, we first need to strip away all the complications, and understand what loading by pure inductance would do. Then we can put back the complications and see what difference they make.

If we want to understand real-life loading coils, it's absolutely vital to understand which parts of the coil's behaviour are due to its inductance, and which parts are due to other things.

Please have patience about this. If we cannot even agree what pure inductance does, then this debate will run forever...

From the beginning, then:

"Lumped" inductance is another name for the pure electrical property of inductance, applied at a single point in a circuit. It has none of the complications of a real-life coil: no physical size, no distributed self-capacitance, and no external electric or magnetic fields. Its only connections with the antenna are through its two terminals. Lumped inductance is just inductance and nothing else.

Unlike capacitance, inductance has NO ability to store charge. If you push an electron into one terminal of a pure inductance, one electron must instantaneously pop out from the other terminal. If there was any delay in this process, it would mean that charge is being stored somewhere... and then we'd no longer be talking about pure inductance [1].

The inability to store charge means there can be no difference between the instantaneous currents at the two terminals of a lumped/pure inductance. Any difference in amplitude or phase at a given instant would mean that charge is being stored or borrowed from some other time in the RF cycle... which inductance cannot do. There is some kind of difference in phase and amplitude in the voltage between its two terminals, but not in the current.

Therefore any difference in currents between the two ends of a real-life coil are NOT due to its inductance. They come from those OTHER properties that make a real-life coil more complicated.

But let's stay with loading by pure lumped inductance for a little longer, and look at a centre-loaded whip. The loading inductance is responsible for almost all the features of the voltage and current profiles along the antenna.

Starting at the bottom (the feedpoint), voltages are low and currents are high, so the feedpoint impedance is low. Going up the lower part of the whip, the magnitudes of the voltage and current remain almost constant until we meet the loading inductance.

As we have seen, if the whip is loaded by pure inductance only, there is no change in current between the two terminals of the inductance - but there's a big step increase in voltage. At the upper terminal, the current is the same but the voltage is very high, so we're into a much higher-impedance environment.

As we go further up towards the top of the whip, current magnitude has to taper off to zero at the very top. This also means that the voltage magnitude has to increase even more as we approach the top of the whip.

Single-point loading by pure inductance has thus created almost all the major features that we see in a practical centre-loaded whip - particularly the big step change in voltage across the loading coil.

What we don't see in a practical antenna are exactly equal current magnitudes and zero phase shift between the terminals of a real-life loading coil - but that is ONLY because a real-life coil is not a pure inductance. The harder we try to reach that ideal (by winding the coil on a high-permeability toroidal core which confines the external fields and allows the whole thing to become very small), the closer the currents at the bottom of the coil come to being equal. Solid theory and accurate measurements come together to support each other. The only gap between theory and practice is due to our inability to construct a pure inductance that has no other complicating properties.

If we can agree about pure inductive loading, we all have a firm place to stand. Then we can then put back those "other" complicating properties of a real-life loading coil, and see what difference they make.

[1] This principle of "conservation of charge" is also the underlying principle of Kirchhoff's current law. If you connect three ordinary wires together, the current flowing into the junction from one wire must be exactly and instantaneously balanced by the currents flowing in or out on the other two wires. If this was not so, there would have to be some means of adding, storing or losing electrons at the junction... which contradicts our initial assumption of three simple wires with no special properties.

It is not strictly accurate to say that Kirchhoff's current law applies to pure inductance, but the underlying principle of "conservation of charge" does apply.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3520. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 17:43:57 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <xjfVf.5047$HW2.114@newsread3.news.pas.earthlink.net>
Source record: 62180

Richard Clark wrote:

> On Sat, 25 Mar 2006 01:53:24 GMT, "W. Watson"
> <wolf_tracks@invalid.com> wrote:
>
>
>>Ultimately, I'm trying to comprehend, via a proof, that two receivers
>>separated by a distance D can act as though they are a single receiver of
>>size D. Perhaps it can be done by simply considering the Young double slit
>>experiment. It bothers me that the idea is passed along without ever proving
>>it. Maybe the proof is trivial.
>
>
> Hi Wayne,
>
> The two receivers/antennas is called "synthetic aperture." You can
> observe the same thing with one antenna that is moving, we commonly
> call it "picket fencing." This effect is due to reflections and
> direct signals interfering constructively and destructively as you
> move through the interference field. The math for that alone is found
> in "Fresnel loss."
>
> The Young double slit IS the proof in that it contains all the math
> you need. It contains two transcendental operations (sin or cos) as
> many thetas as there are phases and distances, some magnitude
> information, and the result pops out at you.
>
> In fact, the math is all the same for all of these effects.
>
> 73's
> Richard Clark, KB7QHC
My *old* physics book doesn't give the proof, but Hecht's Optics does.
Whoops. It's in Waves by Crawford. No mention though that is the proof of
this particular fact. Hecht mentions the experiment, and it may be proven in
subsequent sections using Fourier methods. Waves does it the old fashioned
way. Accepting your comment then, I can read through it with a little more
attention. Thanks.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"No, Groucho is not my real name. I am only
breaking it in fora friend." -- Groucho Marx

Web Page: <home.earthlink.net/~mtnviews>

3521. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 18:27:12 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <bZWdnQ14nLu9F7jZnZ2dnUVZ_tSdnZ2d@adelphia.com>
Source record: 62182

Ian White GM3SEK wrote:

(snip everything but context)

> From the beginning, then:
>
> "Lumped" inductance is another name for the pure electrical property of
> inductance, applied at a single point in a circuit. It has none of the
> complications of a real-life coil: no physical size, no distributed
> self-capacitance, and no external electric or magnetic fields. Its only
> connections with the antenna are through its two terminals. Lumped
> inductance is just inductance and nothing else.

(snip)

> Single-point loading by pure inductance has thus created almost all the
> major features that we see in a practical centre-loaded whip -
> particularly the big step change in voltage across the loading coil.

(snip)

> If we can agree about pure inductive loading, we all have a firm place
> to stand. Then we can then put back those "other" complicating
> properties of a real-life loading coil, and see what difference they make.

I see nothing to quibble over yet. :-)

3522. Re: capacity hat antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 18:33:33 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <veOdnSyFtqEAFrjZnZ2dnUVZ_uWdnZ2d@adelphia.com>
Source record: 62183

w8ji@akorn.net wrote:
(snip)
> I suggest you read:
>
> http://www.w8ji.com/radiation_and_fields.htm
(snip)

I am trying to soak up the information on this page.

In the graph of field impedance versus distance (about half way down the page, is this showing the ratio of E field to H field intensities I would measure with very small electric and magnetic pickups placed at these distances?

It looks like this is showing that a mag loop creates a larger E field at some distances than a dipole that is creating the same far field energy propagation. This is quite counter intuitive, so I want to make sure I have not got it wrong.

3523. FS: Motorola Spring Base antenna mount.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 18:46:51 UTC
From: "Thanks....." <pottsladd13@yahoo.com>
Message-ID: <vegVf.1502$Po1.34@trndny01>
Source record: 62184
Cross-posted to: rec.radio.amateur.antenna,rec.radio.amateur.equipment,rec.radio.swap

New in package, never opened. Spring base antenna mount only. PN#HLN4457A
This is for the old fender mount large whip antenna's.
$10.00 plus $7.50 shipping, Cont. US only. USPS money orders only.

pottsladd13@yahoo.com

3524. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 19:11:27 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <YNqdnVuMr-QdCbjZnZ2dnUVZ_vadnZ2d@adelphia.com>
Source record: 62185

John Popelish wrote:
> Is "height" in "effective height" really referring to effective
> radiating length, rather than something to do with elevation above
> ground (assuming that one is talking about a monopole above a ground
> plane)?
>
> In other words, is the "effective height" of a horizontal dipole
> actually related to its end to end length, not its distance above ground?
>
> I am just trying to get started on the right foot in my reading.

Never mind. I found something you wrote in an earlier thread:

"There's a common term for the relationship between
the field strength and the length of a conductor,
called the "effective height" or "effective length".
The voltage at the center of a dipole in a field of
E volts/m is simply E * the effective length.
The concept is valid for any length conductor,
not just short ones. The effective length of a
uniform-current dipole is equal to the wire length.
The effective length of a short conventional dipole is
0.5 times the wire length. The effective length
for receiving is the same as the effective length for
transmitting -- in transmitting, it relates the strength
of the field produced to the *voltage* -- not power --
applied across the feedpoint.

If you apply 0.5 volts to a standard dipole
and 1.0 volts to a uniform-current dipole,
the power applied to each will be the same
because of the 1:4 ratio of radiation resistance,
and the generated fields will be the same.
This is consistent with the antenna gains being the same."

This cleared up a lot of the terminology and concepts for me.

3525. adapter help needed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 21:07:26 UTC
From: RB <rbig@bellsouth.nospam.net>
Message-ID: <yfiVf.2723$sU4.2424@bignews4.bellsouth.net>
Source record: 62186

Need some help from guys who've been around this kind of stuff for awhile. I have a coax chassis fitting which takes a UG-536B/U plug. I need to get some kind of adapter to go from UG-536B/U to BNC. Would appreciate identification of what such a fitting would be called, and some sources where I can get one.

If worst come to worst and there isn't any such animal, I may just change out the chassis fitting to a std coax/PL-259 thing.

3526. Re: Capture Area (was antenna theory for idiots?)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 21:27:51 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122bdepponfsdf1@corp.supernews.com>
Source record: 62187

"Effective length" refers to dipole type antennas in free space.
"Effective height" is the equivalent property of a grounded monopole.
They're often used somewhat interchangeably.

Roy Lewallen, W7EL

John Popelish wrote:
> Is "height" in "effective height" really referring to effective
> radiating length, rather than something to do with elevation above
> ground (assuming that one is talking about a monopole above a ground
> plane)?
>
> In other words, is the "effective height" of a horizontal dipole
> actually related to its end to end length, not its distance above ground?
>
> I am just trying to get started on the right foot in my reading.

3527. Re: adapter help needed

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-25 22:31:16 UTC
From: Allodoxaphobia <bit-bucket@config.com>
Message-ID: <slrne2bhb0.r1l.bit-bucket@shell.config.com>
Source record: 62188

On Sat, 25 Mar 2006 15:07:26 -0600, RB wrote:
> Need some help from guys who've been around this kind of stuff for awhile.
> I have a coax chassis fitting which takes a UG-536B/U plug. I need to get
> some kind of adapter to go from UG-536B/U to BNC. Would appreciate
> identification of what such a fitting would be called, and some sources
> where I can get one.
>
> If worst come to worst and there isn't any such animal, I may just change
> out the chassis fitting to a std coax/PL-259 thing.

http://www.pasternack.com/Catalog/Products.asp?View=ADAPTERS

3528. DC RF ground (I know...AGAIN!)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 00:59:02 UTC
From: jawod <jawod@fuse.net>
Message-ID: <d6926$4425e769$453d9423$10837@FUSE.NET>
Source record: 62190

After listening to many voices wiser than me, here's how I plan to set up antenna and 2nd floor shack:

Dipole to twin lead to balun to lightning arrestor to coax to transceiver.

both the balun and lightning arrestor will be close to earth and will be earth grounded at that point.

This earth ground will be connected to copper pipes in the basement and will directly connect to the mains ground.

In the shack, I will use the mains ground only.

Between use, I will disconnect and short the antenna.

Does this sound safe and less likely to induce RF in shack?

Thanks for advice!

John

3529. A Small Indoor FM Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 01:01:31 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <LJlVf.5158$HW2.3572@newsread3.news.pas.earthlink.net>
Source record: 62191

I have a product called RadioShark that is like Tivo for radio. I'm in an area where FM is a bit hard to get. I would like to receive at least one station at 88.7 clearly. There are several in the 88 to 89 range that would do as well. It would be good to have an antenna that does it. I definitely recall a simple dipole that looks like a T that is made from some TV lead wire. That's been hooked to an FM rcvr not far from me, but has never worked to well. Possibly because I have to mount it on a nearby wall and under a shelf. It seems to me that years ago that a rabbit ears TV antenna included FM. Certainly the length of the ears were about right. They seem harder to come by. Something like a desktop model would be good, since RS is hooked into my computer in the den. Any suggestions?

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"No, Groucho is not my real name. I am only
breaking it in for a friend." -- Groucho Marx

Web Page: <home.earthlink.net/~mtnviews>

3530. Re: A Small Indoor FM Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 01:10:32 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <9SlVf.14215$6a1.12665@fed1read04>
Source record: 62192

Lots of rabbit ears TV antennas on e-bay -- as low as $2.99 plus shipping

Also Radio Shack may have them

Check out the rabbit cartoon on AC6V's site -- that rabbit is tired
http://ac6v.com/HUMBOOK4.htm

--
CL -- I doubt, therefore I might be !

"W. Watson" <wolf_tracks@invalid.com> wrote in message
news:LJlVf.5158$HW2.3572@newsread3.news.pas.earthlink.net...
>I have a product called RadioShark that is like Tivo for radio. I'm in an
>area where FM is a bit hard to get. I would like to receive at least one
>station at 88.7 clearly. There are several in the 88 to 89 range that would
>do as well. It would be good to have an antenna that does it. I definitely
>recall a simple dipole that looks like a T that is made from some TV lead
>wire. That's been hooked to an FM rcvr not far from me, but has never
>worked to well. Possibly because I have to mount it on a nearby wall and
>under a shelf. It seems to me that years ago that a rabbit ears TV antenna
>included FM. Certainly the length of the ears were about right. They seem
>harder to come by. Something like a desktop model would be good, since RS
>is hooked into my computer in the den. Any suggestions?
>
> Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
> (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
> Obz Site: 39° 15' 7" N, 121° 2' 32" W, 2700 feet
> --
> "No, Groucho is not my real name. I am only
> breaking it in for a friend." -- Groucho Marx
>
> Web Page: <home.earthlink.net/~mtnviews>
>

3531. Re: A Small Indoor FM Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 02:36:35 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9791BDA64496Edoldridgsprintca@64.59.135.159>
Source record: 62193

"W. Watson" <wolf_tracks@invalid.com> wrote in
news:LJlVf.5158$HW2.3572@newsread3.news.pas.earthlink.net:

> I have a product called RadioShark that is like Tivo for radio. I'm in
> an area where FM is a bit hard to get. I would like to receive at
> least one station at 88.7 clearly. There are several in the 88 to 89
> range that would do as well. It would be good to have an antenna that
> does it. I definitely recall a simple dipole that looks like a T that
> is made from some TV lead wire. That's been hooked to an FM rcvr not
> far from me, but has never worked to well. Possibly because I have to
> mount it on a nearby wall and under a shelf. It seems to me that years
> ago that a rabbit ears TV antenna included FM. Certainly the length of
> the ears were about right. They seem harder to come by. Something like
> a desktop model would be good, since RS is hooked into my computer in
> the den. Any suggestions?
>
> Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
> (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
> Obz Site: 39&#65533; 15' 7" N, 121&#65533; 2' 32" W, 2700 feet

Take 66 inches of twinlead. Bare the ends back about 1.5 inches on each
end and short them. Cut into one side only in the center and bare the
cut wire. Connect it to the 300 ohm input of your tuner with more 300
ohm line, or insert a balun and connect with RG6 coax.

Placement may be as important as antenna design.

--
Dave Oldridge+
ICQ 1800667

3532. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 03:48:19 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9791C9CB7AB36doldridgsprintca@64.59.135.159>
Source record: 62194

Richard Clark <kb7qhc@comcast.net> wrote in
news:0db922h6hi32du50lngi3bm7rprivqdijl@4ax.com:

> On Sat, 25 Mar 2006 01:53:24 GMT, "W. Watson"
> <wolf_tracks@invalid.com> wrote:
>
>>Ultimately, I'm trying to comprehend, via a proof, that two receivers
>>separated by a distance D can act as though they are a single receiver
>>of size D. Perhaps it can be done by simply considering the Young
>>double slit experiment. It bothers me that the idea is passed along
>>without ever proving it. Maybe the proof is trivial.
>
> Hi Wayne,
>
> The two receivers/antennas is called "synthetic aperture." You can
> observe the same thing with one antenna that is moving, we commonly
> call it "picket fencing." This effect is due to reflections and
> direct signals interfering constructively and destructively as you
> move through the interference field. The math for that alone is found
> in "Fresnel loss."
>
> The Young double slit IS the proof in that it contains all the math
> you need. It contains two transcendental operations (sin or cos) as
> many thetas as there are phases and distances, some magnitude
> information, and the result pops out at you.
>
> In fact, the math is all the same for all of these effects.

It gets a bit interesting to implement, though, if the antennas are 2000
miles apart!

--
Dave Oldridge+
ICQ 1800667

3533. Re: building a yagi

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 05:23:12 UTC
From: Ken <ws4v@Xwk4wX.com>
Message-ID: <LIednViWL4bduLvZRVn-vg@adelphia.com>
Source record: 62195

I have built several 6, 2, and 543 yagis using 3/16" diameter aluminum rod
(6061) and bought it off Ebay from:

http://cgi.ebay.com/3-16-ROUND-ALUMINUM-ROUND-BAR-ROD-X-40-6061-T6_W0QQitemZ7564034786QQcategoryZ61599QQssPageNameZWDVWQQrdZ1QQcmdZViewItem

The stuff works great and I "Weld" the elements in using Aluminum "welding"
rod, also found on Ebay. Just be sure to follow instructions about cleaning
the metal prior to trying to "weld" it. I use a Mapp gas torch but propane
will work, it just takes a little longer to heat up the metal.

73,
Ken

"Leadfoot" <Ledfoot02@hotmail.com> wrote in message
news:hu3Uf.7382$lb.659961@news1.epix.net...
>I going to build a 11 element yagi but the problem I'm having is I can't
>find the aluminum rods, I was wondering if I use copper if I will still get
>the same Db gain.
>
> I was thinking of another metal was to use brake line from a car that I
> can get in the auto parts store.
>
> Thanks
> Ledfoot
>

3534. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 05:29:33 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <sk9c221qpe0mimc0kj5p7f7fuprc395jvt@4ax.com>
Source record: 62196

On Sun, 26 Mar 2006 03:48:19 GMT, Dave Oldridge
<doldridg@leavethisoutshaw.ca> wrote:

>It gets a bit interesting to implement, though, if the antennas are 2000
>miles apart!

Hi Dave,

If you mean by interesting, SETI.

73's
Richard Clark, KB7QHC

3535. Re: DC RF ground (I know...AGAIN!)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 05:33:20 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <go9c229l5u48v0bij9d50lvv82l44htu9b@4ax.com>
Source record: 62197

On Sat, 25 Mar 2006 19:59:02 -0500, jawod <jawod@fuse.net> wrote:

>Does this sound safe and less likely to induce RF in shack?

Hi John,

The RF in the shack will be on the condition of over the air issues,
and the efficacy of the BalUn. On the other hand, you will probably
be quite happy with the results.

73's
Richard Clark, KB7QHC

3536. need 2EL RDF help

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 10:37:08 UTC
From: Jim <jbasi@cfw.com>
Message-ID: <6325f$4425e117$d80c39e2$9870@NAXS.COM>
Source record: 62189

These are the YagiCad dimensions of a 2 element RDF antenna for 166mhz:

ref 00.00m space .906m length
drv 0.069m space .657m length

This uses .010m diameter aluminum tubing. It is being used on a King radio, which I believe is around 50 ohms. I am using 6 feet of rg58/u with a bnc connector.

YagiCad says the f/b is 37.75db and 5.75db gain. Both the H and E patterns are about what I would like in this RDF. It works pretty well when I use it with the elements vertcal, but less well when they are horizontal. I contructed this as accurately as I could.

I don't even know if this antenna SHOULD work, but am wondering if a hairpin would improve what I have so far? Can someone suggest the dimensions of a hairpin for this?

also, this is maybe a bumb question, but is the element spacing designated in YagiCad designs center to center or true spacing between elements? Is there a big diference?

Jim

3537. Re: DC RF ground (I know...AGAIN!)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 11:27:10 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <zOKdnYfSrr4W57vZnZ2dnUVZ_tednZ2d@comcast.com>
Source record: 62198

jawod wrote:

> After listening to many voices wiser than me, here's how I plan to set
> up antenna and 2nd floor shack:

Details SNIPPED

> Does this sound safe and less likely to induce RF in shack?
>
> Thanks for advice!
>
> John

John, there is always RF in the SHACK!! You are radiating RF from your antenna and possibly feedline. Your shack is quite possibly in the NEAR Field of that antenna. As that RF field propagates outwards from your antenna it induces currents in ALL metal objects, including house wiring, house copper plumbing, etc.

The issue is keeping RF out of the electronics; restated, controlling RF susceptibility.

3538. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 12:54:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <hawVf.63322$dW3.4829@newssvr21.news.prodigy.com>
Source record: 62199

> Patterns of current over length is another subject. But you keep saying
> that there is something different about current in a standing wave.
> There isn't.

Do you really think that func(kx)*func(wt) is the same thing as
func(kx +/- wt)? If so, time to dust off the old math books.
--
73, Cecil http://www.qsl.net/w5dxp

3539. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 12:58:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <3ewVf.63323$dW3.21853@newssvr21.news.prodigy.com>
Source record: 62200

Roy Lewallen wrote:
> The point I'm trying to make is that you don't need any particular
> physical size or any particular length of wire to make something that
> behaves like a transmission line to any degree of accuracy.

Are you admitting that a 75m bugcatcher behaves like
a transmission line?
--
73, Cecil http://www.qsl.net/w5dxp

3540. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 13:18:50 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <x7Cdnab93cdTCbvZRVnyrA@bt.com>
Source record: 62201

EVERYTHING has Inductance, Capacitance and Resistance, and therefore
behaves as a transmission line.

Reg, G4FGQ

3541. Re: First Attempt

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 13:38:22 UTC
From: Mike Coslo <mremovethiscoslo@adelphia.net>
Message-ID: <8J6dnSseNqXTBLvZRVn-pA@adelphia.com>
Source record: 62202

Old Ed wrote:
> Hi Michael,
>
> I tried Google search for salsawaves, and came up with a link to
> an OCF "Windom" antenna. But clicking on the link just led to
> a sort of highjack web page containing only ad links.

Try this link, Ed.

http://www.stroobandt.com/antennas/windom/index.html

- 73 de Mike KB3EIA -

3542. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 14:05:19 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <qZCdnVqUuK2gA7vZnZ2dnUVZ_tWdnZ2d@adelphia.com>
Source record: 62203

Cecil Moore wrote:
> John Popelish wrote:
>> Cecil Moore wrote:
>>> John Popelish wrote:

>>>> If the sensor sits at a single point and sees an AC current,
>>>> you have no way, from this one measurement, if this current
>>>> is the result of a standing wave (two oppositely traveling
>>>> equal waves adding), or a single traveling wave,
>>>> or any combination of traveling waves of different amplitudes.
>>>> You know only the net current at that point.

>>> But if one it smart enough to slide the sensor up and down
>>> the wire and note the phase is fixed and unchanging,
>>> one knows he is dealing with a standing wave.

>> Another point, entirely.
>> My point is that current has a point definition,
>> and standing wave current is certainly indistinguishable
>> from traveling wave current, at a point. Current is current.
>>
>> Patterns of current over length is another subject. But you keep
>> saying that there is something different about current in a standing
>> wave. There isn't.
>
> Do you really think that func(kx)*func(wt) is the same thing as
> func(kx +/- wt)? If so, time to dust off the old math books.

(I restored some context)

func(kx)*func(wt) describes the instantaneous current if you pick a
point along dimension, x, and a moment in time, t. It is a map of the
pattern of current over these two dimensions.

func(kx +/- wt) describes a different pattern of the instantaneous
current if you pick a point along dimension, x, and a moment in time, t.

If you put a tiny current transformer around some point of the
conductors in question, (pick an x) and watch the pattern of current
through time (without comparing the phase to any reference) you will
see a sinusoidal current variation for both the standing and traveling
wave cases. The amplitude will vary in a different way, over x, for
the traveling and standing wave cases. If you include comparing the
phase of sinusoidal current cycle you see, to a reference phase, that
will also vary in a different way over x, for the traveling and
standing wave cases.

But regardless, at a point (any particular x) the pattern of current variation as time passes, will be a sinusoid, in either case. There is no difference in kind of current you would measure.

The pattern of how this sinusoidal current varies in both phase and magnitude is very different in the two cases (standing and traveling waves), but you need both a phase reference and multiple locations to see the differences.

The the definition of the word "current", in simplest form, is, the rate of charge movement past a point at some moment in time.

An extension of this instantaneous and point definition might include a sinusoidal cyclic variation through time, by adding a frequency, phase and amplitude, to specify a common pattern of current over time, but still at a point.

Adding in an additional function of position allows the extension of this definition of current over time to also include spacial variation of the time dependent pattern.

But if you say the words "the current is different", and don't include a lot of additional verbiage to indicate that you are talking about the two dimensional pattern of the variation of current over time and location, some people are going to misunderstand you and argue based on picturing another definition of what might be legitimately meant by the word, "current". I made it clear what definition I was using for the word "current" (the instantaneous point definition) and you are arguing with me, while using some different definition.

I realize that I am being pedantic, here, and stating the painfully obvious. But if your goal is to have other minds synchronize with the abstract thoughts rippling through your mind, you have to be pedantic.

If you are just using this topic to argue, because you enjoy argument,

then never mind.

3543. Re: DC RF ground (I know...AGAIN!)

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 14:09:55 UTC
From: jawod <jawod@fuse.net>
Message-ID: <e56a4$4426a0c7$453d9423$27100@FUSE.NET>
Source record: 62204

Richard Clark wrote:
> On Sat, 25 Mar 2006 19:59:02 -0500, jawod <jawod@fuse.net> wrote:
>
>
>>Does this sound safe and less likely to induce RF in shack?
>
>
> Hi John,
>
> The RF in the shack will be on the condition of over the air issues,
> and the efficacy of the BalUn. On the other hand, you will probably
> be quite happy with the results.
>
> 73's
> Richard Clark, KB7QHC
Thanks, Richard!

John

3544. Re: 80m mobile antenna question

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 14:14:41 UTC
From: "jimmiefender@bellsouth.net" <jimmiedee@bellsouth.net>
Message-ID: <bjxVf.3491$q6.2382@bignews8.bellsouth.net>
Source record: 62205

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:120ekkmb2nbrk75@corp.supernews.com...
> Richard Harrison wrote:
>> Roy Lewallen, W7EL wrote:
>> "I`m not sure why, but most amateurs don`t seem to realize that a whip
>> isn`t an "antenna" and the car "ground", but each is half of a
>> dipole-like antenna."
>>
>> Not exactly..
>>
>> In a common balanced dipole, each half has the same current quantity and
>> direction, though in one half the current flows toward the feedpoint
>> while it flows away in the other half.
>>
>> From such a dipole, both its halves contribute equally to its radiation.
>>
>> Action of a common ground plane is different. When its balanced radials
>> are perpendicular to its whip, radiation from its radials zeros out
>> leaving the whip to do all the radiation. Ideally, a whip mounted on a
>> vehicle or directly on the earth behaves the same. It is the whip which
>> radiates.
>
> A ground plane is a poor model of how currents flow along a car body.
>
> Consider an antenna mounted on top of a car. From the base of the antenna,
> the current flows equally in all directions away from the base of the
> antenna, like a ground plane. This current doesn't contribute much
> radiation, for the reasons you state. But then it reaches the edge of the
> top of the car and flows downward. All the portions of the current are now
> flowing the same direction, and their fields don't cancel but add in
> phase. The net result is the same as if it were just flowing down a fat
> wire the height of the car. If the car is eight feet high, the field from
> the car will equal the field from an eight foot whip. In fact, unless the
> whip is top loaded to make the current uniform, the car will radiate more
> than the whip, because the capacitance of the car to ground will tend to
> give the car a uniform current distribution, like a top hat does to a
> whip. This will increase the radiated field strength from the car.
>
> Now consider a bumper mounted antenna. The current will spread from the
> base and proceed around the car. More will probably flow on the bottom
> than the top and sides due to coupling with the ground, but all portions
> will be flowing in the same direction and all will radiate. There is no
> place on the car where the current distribution or flow pattern resembles
> current on a ground plane.

>
>> An antenna is also called an aerial. It is defined as that part of a
>> radio station which radiates or receives radio waves into or from space.
>>
>> An antenna ground system is defined as that portion of an antenna system
>> closely associated with the earth and including an extensive conducting
>> surface which may be the earth itself.
>
> The problem here is that the currents don't care how you define things.
> They flow where the physical laws dictate. Defining "ground" doesn't make
> them behave differently.
>
>> Most radio amateurs have it right.
>
> If your view represents that of most amateurs, they don't.
>
> Roy Lewallen, W7EL

Several years ago some friends and I did a somewhat crude analysis of the radiation pattern from a mobile on 11 meters. We found that as we took reading from around the car that the field strength varied as much as 10db from the highest to lowest reading. From this we not so seriously concluded that its not so much the antenna but the car that makes a difference in how well you are going to get out.

3545. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 14:52:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <HUxVf.48091$2O6.38456@newssvr12.news.prodigy.com>
Source record: 62206

John Popelish wrote:
> The pattern of how this sinusoidal current varies in both phase and
> magnitude is very different in the two cases (standing and traveling
> waves), but you need both a phase reference and multiple locations to
> see the differences.

Exactly! And the multiple locations are available for us to
measure.

Since you like handicaps so much, how about just plucking
out your eyeballs and chopping off your hands? :-)
--
73, Cecil http://www.qsl.net/w5dxp

3546. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 14:56:28 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143384988.322803.135340@i39g2000cwa.googlegroups.com>
Source record: 62207

John P. wrote, among other things,

"The pattern of how this sinusoidal current varies in both phase and magnitude is very different in the two cases (standing and traveling waves), but you need both a phase reference and multiple locations to see the differences. "

Do you really need the phase reference? Traditionally (since the beginning of measuring them, and sometimes still today), standing waves on a uniform transmission line have been measured by finding a point of minimum amplitude (as measured by voltage, or alternatively by current) and a point of maximum amplitude, with no reference to phase. In fact, SWR was reasonably defined as the ratio of max/min amplitudes. If you know that the wave you're observing is a sinusoid and you have min and max amplitudes along the line, then you can resolve the wave into two travelling-wave amplitudes; you won't know which is which but you will know the two amplitudes. If there is but one source in the system, it's reasonable to think that the higher amplitude travelling wave was the one coming from the direction of that source.

In fact, you don't even need to find the minimum and the maximum points. Again, given sinusoidal excitation and a uniform line, some small set of points with accurate amplitude measurement at each will suffice, since they will uniquely determine the amplitudes of the two waves and the line attenuation. You would have to know the spacing of the points and that they were dense enough that there is not a spacial aliasing problem (points distributed over more than 1/4 wavelength...).

It's common to think of a standing wave as the result of two travelling waves, one in each direction, but another way to think of a standing wave pattern is as a pure standing wave plus a pure travelling wave. The minimum-amplitude represents the amplitude of the travelling-wave portion. The difference between max and min represents the amplitude of the standing wave portion. For some folk, it's enlightening to see an animation of the waves for several different values of SWR.

Cheers,
Tom

3547. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 15:12:23 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <rbyVf.48101$2O6.2073@newssvr12.news.prodigy.com>
Source record: 62209

w8ji@akorn.net wrote:
> I'll have to think about that a while and how it might affect what I am
> saying.

I'm back from Tulsa and had time to think while I was gone.
Given that none of the measurements reported so far actually
measured the phase shift through a coil, I have devised an
EZNEC example that should be very easy to duplicate for
real world measurements.

Previously I had offered a 5.89 MHz base-loaded antenna as
an example. The top of my antenna was the typical open-
circuit with its 100% reflection at the tip. W7EL took my
file and connected the top of the coil back to ground. He
changed the 'tip' of the antenna to a short-circuit to
ground so the 100% reflection at the 'tip' remained. All
that shorting the top of the coil to ground accomplished
was different phase shifts in the reflected wave. Any
information contained in the standing wave current phase
continued to be zero because of unchanging phase.

So here's the EZNEC example and an experiment that any
properly equipped person can duplicate. That includes
you and W7EL.

I took W7EL's EZNEC file and changed wire #203 from 0.25'
to 31.25'. At the 'tip' of the antenna, I installed a
439.2 ohm load that turns the antenna into a 90 degree
long *traveling-wave* antenna. Note that the current
magnitude at the top of the coil is identical to the
current magnitude through the load resistor. The load
resistor's value is very close to the calculated Z0
of the 31' #16 wire two feet above ground, using the
formula for a single wire transmission line above
ground.

The graphic is at http://www.qsl.net/w5dxp/test316y.GIF

The EZNEC file can be downloaded from:

http://www qsl.net/w5dxp/test316y.EZ

I will add the supporting text to my web page later today.

Please explain the 15.68 degree phase shift through the
coil. Don't you find it strange that all the wire in the
system occupies 90.01 - 15.68 = 74.33 degrees?

--
73, Cecil http://www.qsl.net/w5dxp

3548. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 15:12:38 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <E8CdnYaKa9qZM7vZRVn-vg@adelphia.com>
Source record: 62208

K7ITM wrote:
> John P. wrote, among other things,
>
> "The pattern of how this sinusoidal current varies in both phase and
> magnitude is very different in the two cases (standing and traveling
> waves), but you need both a phase reference and multiple locations to
> see the differences. "
>
> Do you really need the phase reference? Traditionally (since the
> beginning of measuring them, and sometimes still today), standing waves
> on a uniform transmission line have been measured by finding a point of
> minimum amplitude (as measured by voltage, or alternatively by current)
> and a point of maximum amplitude, with no reference to phase. In fact,
> SWR was reasonably defined as the ratio of max/min amplitudes.
(snip)

What I was trying to say is that to completely see (measure) all the
differences between the current pattern in a standing wave versus a
traveling wave (or any combination of traveling waves of different
magnitudes in opposite directions, with or without losses, especially
when there are discontinuities in the conductor, like loading coils)
those observations would include phase versus position.

In many practical cases, you can infer what you need to know about the
two traveling waves by just taking amplitude measurements, as you suggest.

3549. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 15:35:33 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <9xyVf.48109$2O6.19917@newssvr12.news.prodigy.com>
Source record: 62210

K7ITM wrote:
> In fact, you don't even need to find the minimum and the maximum
> points. Again, given sinusoidal excitation and a uniform line, some
> small set of points with accurate amplitude measurement at each will
> suffice, since they will uniquely determine the amplitudes of the two
> waves and the line attenuation. You would have to know the spacing of
> the points and that they were dense enough that there is not a spacial
> aliasing problem (points distributed over more than 1/4 wavelength...).

Which points out, once again, that the phase information in a
standing wave is contained in the amplitude, not in the phase.
W7EL measured the *phase* of the standing-wave current which
is known not to contain any information as it is close to
unchanging all along a 1/2WL dipole or 1/4WL monopole. Yet he
reported it as meaningful. So far, nobody has made meaningful
phase shift measurements through a loading coil.

> It's common to think of a standing wave as the result of two travelling
> waves, one in each direction, but another way to think of a standing
> wave pattern is as a pure standing wave plus a pure travelling wave.

One cannot get away from the fact that the pure standing wave
is the superposition of equal amplitude traveling waves flowing
in opposite directions. Some part of the forward traveling wave
must be allocated to the standing wave function. That part of
the traveling wave transfers no energy.

|Ifor| - |Iref| = |Ifor'| the part of the forward traveling wave
that is transferring energy.

|Ifor| - |Ifor'| = |Ifor''| = |Iref| the part of the forward
traveling wave that is contributing to the pure standing wave
and transferring no energy.
--
73, Cecil http://www.qsl.net/w5dxp

3550. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 15:43:52 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <G7ydnYYWdvDLKLvZRVn-uQ@adelphia.com>
Source record: 62211

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> I'll have to think about that a while and how it might affect what I am
>> saying.
(snip)
> So here's the EZNEC example and an experiment that any
> properly equipped person can duplicate. That includes
> you and W7EL.
>
> I took W7EL's EZNEC file and changed wire #203 from 0.25'
> to 31.25'. At the 'tip' of the antenna, I installed a
> 439.2 ohm load that turns the antenna into a 90 degree
> long *traveling-wave* antenna. Note that the current
> magnitude at the top of the coil is identical to the
> current magnitude through the load resistor. The load
> resistor's value is very close to the calculated Z0
> of the 31' #16 wire two feet above ground, using the
> formula for a single wire transmission line above
> ground.
>
> The graphic is at http://www.qsl.net/w5dxp/test316y.GIF
>
> The EZNEC file can be downloaded from:
>
> http://www qsl.net/w5dxp/test316y.EZ
(snip)

Excellent!

Can you use this example, with varying frequency to explore your
assertion that the time delay (frequency times phase shift) of the
coil varies little over a significant range of frequencies up to self
resonance, and that that delay is about 1/4 cycle of the self resonant
frequency?

A graph of delay versus frequency would be useful. It should show
over what frequency range the coil acts mostly like a transmission
line and where it acts mostly like something else (i.e. inductor,
parallel resonant tank).

3551. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 16:26:05 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <1q-dnUfoPMQGXbvZ4p2dnA@comcast.com>
Source record: 62212

EVERYTHING????

I thought there is/was a restriction that "Everything" must include "a
significant portion of a wavelength".

:-)

Reg Edwards wrote:

> EVERYTHING has Inductance, Capacitance and Resistance, and therefore
> behaves as a transmission line.
> ----
> Reg, G4FGQ
>
>

3552. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 16:39:57 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <xtzVf.5526$4L1.2260@newssvr11.news.prodigy.com>
Source record: 62213

John Popelish wrote:
> Can you use this example, with varying frequency to explore your
> assertion that the time delay (frequency times phase shift) of the coil
> varies little over a significant range of frequencies up to self
> resonance, and that that delay is about 1/4 cycle of the self resonant
> frequency?

I will do that when my energy level returns after getting
home at 2 am this morning. Note that anyone can download
the EZNEC file from http://www.qsl.net/w5dxp/test316y.EZ

> A graph of delay versus frequency would be useful. It should show over
> what frequency range the coil acts mostly like a transmission line and
> where it acts mostly like something else (i.e. inductor, parallel
> resonant tank).

This coil, operated below its self-resonant frequency, has
phase shift of 15.68 degrees or ~0.044 wavelength (delay of
7.4 nS). Dr. Corum says anything over 15 degrees requires
the distributed network model. 15 degrees will transform
50 ohms to 54+j120 ohms, causing SWR to be erroneously
reported as 7:1 instead of 1:1. That sounds like too
large an error to me.

Since the lumped-circuit model assumes a delay of zero, i.e.
faster than light, seems the use of the lumped-circuit model
results in 100% error, or infinite error if one calculates
it the other way. :-)

BTW, one of the principles on the other side of the argument
sent me a file with a worm in it. I guess he wanted to
extend the silence caused by my trip by bringing down my
computer.
--
73, Cecil http://www.qsl.net/w5dxp

3553. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 17:01:19 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <rfednZvecvjgWrvZnZ2dnUVZ_vqdnZ2d@adelphia.com>
Source record: 62214

Cecil Moore wrote:

> This coil, operated below its self-resonant frequency, has
> phase shift of 15.68 degrees or ~0.044 wavelength (delay of
> 7.4 nS). Dr. Corum says anything over 15 degrees requires
> the distributed network model. 15 degrees will transform
> 50 ohms to 54+j120 ohms, causing SWR to be erroneously
> reported as 7:1 instead of 1:1. That sounds like too
> large an error to me.
>
> Since the lumped-circuit model assumes a delay of zero, i.e.
> faster than light, seems the use of the lumped-circuit model
> results in 100% error, or infinite error if one calculates
> it the other way. :-)

Not if the lumped inductor model includes lumps of capacitance that
represent the strays to ground. Lumped LC networks exhibit phase
shift, also.

> BTW, one of the principles on the other side of the argument
> sent me a file with a worm in it. I guess he wanted to
> extend the silence caused by my trip by bringing down my
> computer.

Never blame malice when ignorance will suffice. Even if you are
wrong, you will sleep better.

3554. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 17:07:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <nuhd2252oqb2lbldajopsq8l8l9o1bmdjj@4ax.com>
Source record: 62215

On Sun, 26 Mar 2006 15:12:23 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>Don't you find it strange that all the wire in the
>system occupies 90.01 - 15.68 = 74.33 degrees?

Strange?

1. The current distribution shown on the web is different than
the current distribution shown in the model;
2. -4.91 + -20.59 + -90.01 = -115.51 is different than
90.01 - 15.68 = 74.33
3. The coil Vf shown on the web is 0.1375 is different than
eq (32) => 0.0078
4. refuting your own references (Corumï¿½).

not strange at all.

3555. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 17:21:17 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <h4AVf.5552$4L1.3255@newssvr11.news.prodigy.com>
Source record: 62216

John Popelish wrote:
> Can you use this example, with varying frequency to explore your
> assertion that the time delay (frequency times phase shift) of the coil
> varies little over a significant range of frequencies up to self
> resonance, and that that delay is about 1/4 cycle of the self resonant
> frequency?

Please don't put words in my mouth. What I have previously said
is that the delay can be *ROUGHLY* calculated using the self-
resonant frequency. I said something about +/- 50% accuracy.
Here's what EZNEC reports as the phase shift through the coil
in the traveling wave antenna previously tested at 5.89 MHz.

5.5 MHz: 14.1 deg, 5.89 MHz: 15.7 deg, 6 MHz: 16.2 deg,
7 MHz: 21.4 deg, 8 MHz: 29.5 deg, 9 MHz: 45.9 deg,
10 MHz: 89 deg, 11 MHz: 141.4 deg, 12 MHz: 163.0 deg,
13 MHz: 172.3 deg, 13.7 MHz: 183.82 deg.

The linear delay calculation is off by 59%, not too far from
my 50% rough estimate. Please note that the above values of
delays reported by EZNEC are nowhere near the 3 nS measured
by W8JI in the standing wave environment.
--
73, Cecil http://www.qsl.net/w5dxp

3556. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 17:33:03 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <ffjd22hhuasr9nh16ri474v5hhq8b78hsd@4ax.com>
Source record: 62217

On Sun, 26 Mar 2006 17:21:17 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>I said something about +/- 50% accuracy.
>The linear delay calculation is off by 59%, not too far from
>my 50% rough estimate.

error is growing faster than the national debt. ;-)

>nowhere near the 3 nS measured
>by W8JI in the standing wave environment.

On Sun, 26 Mar 2006 16:39:57 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>delay of 7.4 nS

Hmm, giving Tom the same grace of 59% reveals that the figures above,
7.4nS ï¿½59% (4.4 - 11.77)
and
3nS ï¿½59% (1.77 - 4.77)
overlap.

The thing about error (especially when it is in a growth mode
indicating loss of control over the experiment) is that you don't know
where within the band of possible values that the actual value
resides.

So, comparing the one to the other, making a claim that the other is
invalid, must necessarily invalidate both as they are convergent. Such
is the legacy of poor quality control.

It might be tempting to perform a Hail Mary save, by suddenly
declaring they are both right. :-)
but at 59% error, we can all agree that's a fantasy. Stretching your
tolerance for error to fit your argument can lead to any conclusion.

3557. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 18:03:26 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <OHAVf.51012$F_3.47027@newssvr29.news.prodigy.net>
Source record: 62218

Richard Clark wrote:
> 1. The current distribution shown on the web is different than
> the current distribution shown in the model;

Don't you know how to turn on the 'Current Phase' option when
displaying EZNEC results. Do you need a tutorial?

> 2. -4.91 + -20.59 + -90.01 = -115.51 is different than
> 90.01 - 15.68 = 74.33

The phase of the source is referenced at zero degrees. The
currents along the antenna are lagging the source current.
-4.91 deg is the phase of the current at the bottom of the
coil. -20.59 deg is the phase of the current at the top of
the coil. -90.01 deg is the phase of the current at the end
of the antenna. Trying to add those phases shows a lot of
ignorance.

> 3. The coil Vf shown on the web is 0.1375 is different than
> eq (32) => 0.0078

Sorry, you're wrong. eq(32) for this coil yields a VF of ~0.033
which Dr. Corum claims to be accurate within about 10%. The
coil VF on the web is at 5.89 MHz, *NOT* at the self-resonant
frequency.

> 4. refuting your own references (Corumï¿½).

Dr. Corum's equation for the coil VF is at its *SELF-RESONANT*
frequency, not anywhere else. Using it anywhere else is only
a *VERY ROUGH* estimate. At the self resonant frequency reported
by EZNEC, the VF calculates out to be ~0.055.
--
73, Cecil http://www.qsl.net/w5dxp

3558. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 18:04:56 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <cJAVf.48457$2O6.11018@newssvr12.news.prodigy.com>
Source record: 62219

Richard Clark wrote:
> On Sun, 26 Mar 2006 15:12:23 GMT, Cecil Moore <mycall@hotmail.com>
> wrote:
>
>>Don't you find it strange that all the wire in the
>>system occupies 90.01 - 15.68 = 74.33 degrees?
>
>
> Strange?
>
> 1. The current distribution shown on the web is different than
> the current distribution shown in the model;
> 2. -4.91 + -20.59 + -90.01 = -115.51 is different than
> 90.01 - 15.68 = 74.33
> 3. The coil Vf shown on the web is 0.1375 is different than
> eq (32) => 0.0078
> 4. refuting your own references (Corumï¿½).
>
> not strange at all.

Hi Richard,
Cecil never actually reads his references, he just
gives them and hopes you won't read them either. If he'd
bothered to look at figure 2 in the Corum reference he would
have found that the Corums had in mind a shorted stub as a
substitute for their Tesla coil. That's o.k., since it would lead
to an inductance (jZc*tan(Betag*h)) which they could use in the
time-honored way to resonate with the capacitance of the rest
of the circuit.
You're right, not strange at all.
73,
Tom Donaly, KA6RUH

3559. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 18:07:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <cLAVf.51013$F_3.39955@newssvr29.news.prodigy.net>
Source record: 62220

Dave wrote:
> I thought there is/was a restriction that "Everything" must include "a
> significant portion of a wavelength". :-)

A lumped-circuit inductance is *NEVER* a significant
portion of a wavelength, by definition and presupposition.
That's the argument being put forth by the lumped-circuit
gurus. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3560. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 18:13:02 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <OQAVf.51014$F_3.29765@newssvr29.news.prodigy.net>
Source record: 62221

Tom Donaly wrote:
> You're right, not strange at all.

In his posting, Richard C. proved he doesn't know how to turn on
the 'Current Phase' option in EZNEC, proved he cannot use a formula
to extract a valid calculation, proved he doesn't know how to
add phase angles, and you are agreeing with him? And you accuse
me of not understanding what I read?
--
73, Cecil http://www.qsl.net/w5dxp

3561. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 19:14:36 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <wKBVf.59328$H71.31976@newssvr13.news.prodigy.com>
Source record: 62222

Richard Clark wrote:
> Cecil Moore <mycall@hotmail.com> wrote:
>>I said something about +/- 50% accuracy.
>>The linear delay calculation is off by 59%, not too far from
>>my 50% rough estimate.
>
> error is growing faster than the national debt. ;-)

Now, that is certainly a lie. :-) Remember, W8JI said that
any answer is better than no answer. That presumably includes
his wrong answers. :-)

> Stretching your
> tolerance for error to fit your argument can lead to any conclusion.

It's not a tolerance for error. It's a recognition that the
answer is, so far, unknown. I've said it before: The delay
through the coil is what it is and we don't know exactly what
it is. That it is difficult to estimate or measure has absolutely
no effect on its value in reality.

What we know for sure is that the presuppositions of the
lumped-circuit model indeed do violate the laws of physics.
Faster than light propagation through a coil comes to mind.

I am admittedly surprised to see the velocity factor fall
so rapidly with frequency. My surprise has absolutely no
effect on reality. I just use the scientific method to
adjust my concepts and move on. However, to paraphrase an old
TV commercial, "It's not nice to fool Father Guru". The earth
may reduce to a quantum singularity when the r.r.a.a gurus
recognize their errors. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3562. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 19:21:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <5RBVf.59329$H71.39820@newssvr13.news.prodigy.com>
Source record: 62223

John Popelish wrote:
> Not if the lumped inductor model includes lumps of capacitance that
> represent the strays to ground. Lumped LC networks exhibit phase shift,
> also.

But please remember the original assertions by the gurus. There
is ZERO phase shift through an inductor. There is ZERO amplitude
change through an inductor. This can easily be proven by observing
the lumped inductances in EZNEC. W7EL shot down those arguments
by installing the helix feature in EZNEC. :-)

> Never blame malice when ignorance will suffice.

If this person has to confess between ignorance and malicious
behavior, I am sure he would go to jail rather than admit
any ignorance.
--
73, Cecil http://www.qsl.net/w5dxp

3563. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:06:59 UTC
From: N7ZZT - Eric Oyen <n7zzt@127.0.0.1>
Message-ID: <WsCVf.328$FI.116@fed1read09>
Source record: 62224

artie wrote:

>
> Helium is for pansies. Use hydrogen; it won't leak as fast (really --
> those heliums are solitary little sneaky bastards and will get out of
> anything, while hydrogens are diatomic and tend to stick around
> longer).
pardon me, but have you looked at the periodic table lately?

Hydrogen is made up of a single proton and a single electron. it tends to leak through just about any material regardless of thickness. helium, OTOH, is a construct of a proton, a neutron and a single electron (may have more than one depending on isotope, etc) and will tend not to leak nearly as much.

Hydrogen is far more plentiful in the environment, but happens to be quite flammable (read that as EXPLOSIVE!). Helium is not flammable and much safer, though a bit harder to come by (hence its cost).

--
DE N7ZZT
Eric Oyen
Phoenix, Arizona
e-mail: n7zzt(at)hotmail(dot)com
the difference between intelligence and stupidity is that intelligence has its limits.

3564. Spam and worms

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:10:08 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122dt93a1b06e01@corp.supernews.com>
Source record: 62225

I've now gotten two emails from other newsgroup participants about messages containing a worm or virus with my email address in the "From" line. One was well-meaning, the other accusatory.

When a worm or virus infects a computer, it commonly sends itself to addresses in the victim's address book. It forges other addresses from the address book into the "From" and "Reply-to" lines. One thing you can *always* count on is that a spam, worm, or virus email *never* comes from the location in the "From" or "Reply-to" lines of the header. If you've gotten one which has my address in one or both those lines, it means simply that both our addresses are in the victim's address book.

Senders of spam also *always* forge return addresses, and sometimes use a genuine address they've gathered at random, or occasionally use one purposefully as a means to harass someone. Some time ago, a major spammer decided to use mine for a while, and I got about 100 bounce messages per day for a couple of months as a result.

If you want to help stop the spread of the worm, go to http://www.spamcop.net/anonsignup.shtml. Click the link labeled "Learn more about what to report and what not to report to SpamCop" and read the section about viruses. Then sign up to use their automated spam tool. It's able to parse through a forged header and detect the true origin of an email message. Follow the directions for "Viruses" at http://www.spamcop.net/fom-serve/cache/125.html. This will notify the ISP that one of their customers' machines is infected, and enable them to identify which machine it is.

Because my email address appears in a lot of address books, I see infections from time to time in the form of bounce messages resulting from the worm being sent to invalid addresses. There was a particularly bad one a while back on some German ham's machine which got me a lot of bounce mail. This one is apparently in the machine of someone who reads this newsgroup or at least has occasion to email some of the participants.

Roy Lewallen, W7EL

3565. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:15:57 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <5MidnX7c5KkEa7vZRVnyvw@bt.com>
Source record: 62226

```
>
> I thought there is/was a restriction that "Everything" must include
"a
> significant portion of a wavelength".
>
==================================

There are no problems. A very short coil behaves as a very short
transmission line.
----
Reg.
```

3566. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:20:46 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122dtt1h9u3pa4f@corp.supernews.com>
Source record: 62227

Reg is correct. Even a very short structure, much shorter than a wavelength, acts like a transmission line. A short structure just acts like a short transmission line. It's just that if it's short, there are simpler ways to analyze it which will get us essentially the same answer. But we can use full blown transmission line analysis on any structure if we choose, and should get the correct answer.

Roy Lewallen, W7EL

Dave wrote:
> EVERYTHING????
>
> I thought there is/was a restriction that "Everything" must include "a
> significant portion of a wavelength".
>
> :-)
>
> Reg Edwards wrote:
>
>> EVERYTHING has Inductance, Capacitance and Resistance, and therefore
>> behaves as a transmission line.
>> ----
>> Reg, G4FGQ
>>
>>
>

3567. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:29:20 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <AQCVf.60344$Jd.39839@newssvr25.news.prodigy.net>
Source record: 62228

Cecil Moore wrote:
> 5.5 MHz: 14.1 deg, 5.89 MHz: 15.7 deg, 6 MHz: 16.2 deg,
> 7 MHz: 21.4 deg, 8 MHz: 29.5 deg, 9 MHz: 45.9 deg,
> 10 MHz: 89 deg, 11 MHz: 141.4 deg, 12 MHz: 163.0 deg,
> 13 MHz: 172.3 deg, 13.7 MHz: 183.82 deg.

I just bought Mathcad and am trying to learn to use it.
The graph of the above data is really interesting. Somewhat
like a sine function, this curve has an inflection point
around 10 MHz where the phase shift is changing most rapidly.
On either side of 10 MHz, it doesn't change as rapidly.
10 MHz appears to be the 1/8 wavelength point where
|Z0| = |XL|.
--
73, Cecil http://www.qsl.net/w5dxp

3568. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:29:33 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <NQCVf.60345$Jd.16978@newssvr25.news.prodigy.net>
Source record: 62229

Reg Edwards wrote:
>>I thought there is/was a restriction that "Everything" must include
>
> "a
>
>>significant portion of a wavelength".
>>
>
> ==========
>
> There are no problems. A very short coil behaves as a very short
> transmission line.
> ----
> Reg.
>
>

I'm glad to know that I can substitute a coil of wire every time I
need a transmission line. So tell me, Reg, what
are the specs on the coil I'd need to make a transmission line
transformer to match 75 ohms to 325.33 ohms?
73,
Tom Donaly, KA6RUH

3569. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:32:24 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <sTCVf.60346$Jd.47720@newssvr25.news.prodigy.net>
Source record: 62230

Cecil Moore wrote:

> Tom Donaly wrote:
>
>> You're right, not strange at all.
>
>
> In his posting, Richard C. proved he doesn't know how to turn on
> the 'Current Phase' option in EZNEC, proved he cannot use a formula
> to extract a valid calculation, proved he doesn't know how to
> add phase angles, and you are agreeing with him? And you accuse
> me of not understanding what I read?

What about figure 2, Cecil?
73,
Tom Donaly, KA6RUH

3570. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:35:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <uWCVf.60347$Jd.45168@newssvr25.news.prodigy.net>
Source record: 62231

Roy Lewallen wrote:

> Reg is correct. Even a very short structure, much shorter than a
> wavelength, acts like a transmission line. A short structure just acts
> like a short transmission line. It's just that if it's short, there are
> simpler ways to analyze it which will get us essentially the same
> answer. But we can use full blown transmission line analysis on any
> structure if we choose, and should get the correct answer.

Seems that you agree that the distributed network model works for
all common problems. That makes sense since the distributed network
model is a superset of the lumped-circuit model.

Using Dr. Corum's rule that models should be switched at 15 degrees,
15 degrees of a 450 ohm transmission line will transform 50+j0 ohms
to 54+j120 ohms. The difference in 50 ohm SWR is 7:1 Vs 1:1. That
seems like a pretty large error to me just to be able to stick
with the lumped-circuit model.
--
73, Cecil http://www.qsl.net/w5dxp

3571. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:40:25 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <Ur6dnfFZiaaqYbvZ4p2dnA@comcast.com>
Source record: 62232

Reg Edwards wrote:

>>I thought there is/was a restriction that "Everything" must include
>
> "a
>
>>significant portion of a wavelength".
>>
>
> ==========
>
> There are no problems. A very short coil behaves as a very short
> transmission line.
> ----
> Reg.
>
>

C'mon Reg! We both know that a 1/4 inch diameter loop is NOT a
transmission line at 0.1 MHz. :-0

3572. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:43:24 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <M1DVf.60348$Jd.38239@newssvr25.news.prodigy.net>
Source record: 62233

Tom Donaly wrote:
> I'm glad to know that I can substitute a coil of wire every time I
> need a transmission line. So tell me, Reg, what
> are the specs on the coil I'd need to make a transmission line
> transformer to match 75 ohms to 325.33 ohms?

How about at least tell Reg the frequency?
--
73, Cecil http://www.qsl.net/w5dxp

3573. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 20:54:33 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <dcDVf.60355$Jd.59019@newssvr25.news.prodigy.net>
Source record: 62234

Tom Donaly wrote:
> What about figure 2, Cecil?

Figure 2 suggests that any coil with a delay over 15 degrees
should be analyzed by discarding the lumped circuit model
and instead using the distributed network model. Every coil
I have talked about on this thread has a delay greater than
15 degrees. 15 degrees of impedance transformation will transform
50 ohms into 54+j120 ohms with a difference in SWRs of 7 to one.
Does that really sound like a reasonable reason for keeping the
lumped-circuit model?

Roy just said in another posting that the reflection model
will solve all the problems that the lumped circuit model
will solve. It just gets clumsy as far as the math goes.

It is interesting to watch the gurus retreat into fantasy
where they were only ever talking about tiny point inductances
to start with. Anyone who has been following this argument
over the years knows otherwise.
--
73, Cecil http://www.qsl.net/w5dxp

3574. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:07:46 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <CoDVf.59659$H71.29802@newssvr13.news.prodigy.com>
Source record: 62235

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> I'm glad to know that I can substitute a coil of wire every time I
>> need a transmission line. So tell me, Reg, what
>> are the specs on the coil I'd need to make a transmission line
>> transformer to match 75 ohms to 325.33 ohms?
>
>
> How about at least tell Reg the frequency?

Reg is old enough to pick his own frequency.
73,
Tom Donaly, KA6RUH

3575. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:16:57 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <CLSdnR1IH6lCmbrZRVnyrw@bt.com>
Source record: 62236

> I'm glad to know that I can substitute a coil of wire every time I
> need a transmission line. So tell me, Reg, what
> are the specs on the coil I'd need to make a transmission line
> transformer to match 75 ohms to 325.33 ohms?
> 73,
> Tom Donaly, KA6RUH
==========
Every coil is a transmission line.

But not every transmission line is a coil.

Reg.

3576. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:26:28 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <8GDVf.5770$4L1.3335@newssvr11.news.prodigy.com>
Source record: 62237

Cecil Moore wrote:

> Tom Donaly wrote:
>
>> What about figure 2, Cecil?
>
>
> Figure 2 suggests that any coil with a delay over 15 degrees
> should be analyzed by discarding the lumped circuit model
> and instead using the distributed network model. Every coil
> I have talked about on this thread has a delay greater than
> 15 degrees. 15 degrees of impedance transformation will transform
> 50 ohms into 54+j120 ohms with a difference in SWRs of 7 to one.
> Does that really sound like a reasonable reason for keeping the
> lumped-circuit model?
>
> Roy just said in another posting that the reflection model
> will solve all the problems that the lumped circuit model
> will solve. It just gets clumsy as far as the math goes.
>
> It is interesting to watch the gurus retreat into fantasy
> where they were only ever talking about tiny point inductances
> to start with. Anyone who has been following this argument
> over the years knows otherwise.

Figure 2 shows that the authors considered their model to be
that of a shorted stub to replace the inductance of their Tesla
coil. They didn't say that a coil of wire is a shorted stub,
only that it performs the same function as one in the calculations.
You're waffling and trying to slick your way out of an embarrassing
situation again, Cecil. O.k., I'll accept the shorted stub
substitution. Heck, I'll even accept a solution involving
op-amps, (provided you don't use it in transmit mode). What I won't
accept is pretending a long hank of transmission line with a load
at one end performs the same impedance transformation in the same way
as a coil of wire.
73,
Tom Donaly, KA6RUH

3577. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:35:28 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <AODVf.5786$4L1.5302@newssvr11.news.prodigy.com>
Source record: 62238

Roy Lewallen wrote:

> Reg is correct. Even a very short structure, much shorter than a
> wavelength, acts like a transmission line. A short structure just acts
> like a short transmission line. It's just that if it's short, there are
> simpler ways to analyze it which will get us essentially the same
> answer. But we can use full blown transmission line analysis on any
> structure if we choose, and should get the correct answer.
>
> Roy Lewallen, W7EL
>
> Dave wrote:
>
>> EVERYTHING????
>>
>> I thought there is/was a restriction that "Everything" must include "a
>> significant portion of a wavelength".
>>
>> :-)
>>
>> Reg Edwards wrote:
>>
>>> EVERYTHING has Inductance, Capacitance and Resistance, and therefore
>>> behaves as a transmission line.
>>> ----
>>> Reg, G4FGQ
>>>
>>>
>>

If we do, we're going to have our work cut out for us. When the
fundamental quantities L, R, C, and G are unknown functions instead
of constants, analysis gets tricky. If it didn't get tricky, we could
solve for currents on conductors with simple equations instead of
having to use moment methods to numerically solve intractible
integral equations.
73,
Tom Donaly, KA6RUH

3578. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:41:16 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <0UDVf.9189$tN3.8343@newssvr27.news.prodigy.net>
Source record: 62239

Tom Donaly wrote:
> You're waffling and trying to slick your way out of an embarrassing
> situation again, Cecil.

I sincerely do not know what you are babbling about. I'm
not aware that I am in an embarrassing situation and if
I were aware, I would ask someone to enlighten me. I have
read Dr. Corum's articles multiple times and understand
more and more each time I read them. I am using the scientific
method to correct my mistakes and move on. What are you doing?
Mounting ad hominem waffling and slicking attacks.
--
73, Cecil http://www.qsl.net/w5dxp

3579. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 21:53:27 UTC
From: Ralph Mowery <rmowery28146@earthlink.net>
Message-ID: <r3EVf.18073$S25.15347@newsread1.news.atl.earthlink.net>
Source record: 62240

"N7ZZT - Eric Oyen" <n7zzt@127.0.0.1> wrote in message
news:WsCVf.328$Fl.116@fed1read09...
> artie wrote:
>
>
> >
> > Helium is for pansies. Use hydrogen; it won't leak as fast (really --
> > those heliums are solitary little sneaky bastards and will get out of
> > anything, while hydrogens are diatomic and tend to stick around
> > longer).
> pardon me, but have you looked at the periodic table lately?
>
> Hydrogen is made up of a single proton and a single electron. it tends to
> leak through just about any material regardless of thickness. helium,
OTOH,
> is a construct of a proton, a neutron and a single electron (may have more
> than one depending on isotope, etc) and will tend not to leak nearly as
> much.
>
> Hydrogen is far more plentiful in the environment, but happens to be quite
> flammable (read that as EXPLOSIVE!). Helium is not flammable and much
> safer, though a bit harder to come by (hence its cost).
>
>
> --
> DE N7ZZT
> Eric Oyen
> Phoenix, Arizona
> e-mail: n7zzt(at)hotmail(dot)com
> the difference between intelligence and stupidity is that intelligence
> has its limits.

I see that you have reached your limit. Check the data and repost with
the correct ammount of electrons, protrons and neutrons.

3580. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:05:16 UTC
From: artie <artie.m@gNOSPAMmail.com>
Message-ID: <260320061405167892%artie.m@gNOSPAMmail.com>
Source record: 62241

In article <WsCVf.328$Fl.116@fed1read09>, N7ZZT - Eric Oyen
<n7zzt@127.0.0.1> wrote:

> artie wrote:
>
>
> >
> > Helium is for pansies. Use hydrogen; it won't leak as fast (really --
> > those heliums are solitary little sneaky bastards and will get out of
> > anything, while hydrogens are diatomic and tend to stick around
> > longer).
> pardon me, but have you looked at the periodic table lately?
>
> Hydrogen is made up of a single proton and a single electron. it tends to
> leak through just about any material regardless of thickness. helium, OTOH,
> is a construct of a proton, a neutron and a single electron (may have more
> than one depending on isotope, etc) and will tend not to leak nearly as
> much.
>
> Hydrogen is far more plentiful in the environment, but happens to be quite
> flammable (read that as EXPLOSIVE!). Helium is not flammable and much
> safer, though a bit harder to come by (hence its cost).

The key word is *diatomic* -- in this context it refers to the fact
that in its gaseous form, hydrogen is present in the moecular form
comprising two hydrogen atoms. This property is also shared by
nitrogen and oxygen.

This H2 molecule is larger than the solitary He -- that's why He is
used in leak detectors.

--
Namaste--

3581. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:07:52 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122e45slqnrb3d@corp.supernews.com>
Source record: 62242

Tom Donaly wrote:
> Cecil Moore wrote:
>>
>> Roy just said in another posting that the reflection model
>> will solve all the problems that the lumped circuit model
>> will solve. It just gets clumsy as far as the math goes.
>>. . .

I said "transmission line" model, not "reflection" model. I want to clarify this because I don't want what I said to be interpreted as an endorsement of Cecil's alternate theories involving traveling waves. Implicit in what I said is also that the transmission line model or equations must be used correctly.

Roy Lewallen, W7EL

3582. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:15:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <foEVf.60362$Jd.3050@newssvr25.news.prodigy.net>
Source record: 62243

Roy Lewallen wrote:

>> Cecil Moore wrote:
>>> Roy just said in another posting that the reflection model
>>> will solve all the problems that the lumped circuit model
>>> will solve. It just gets clumsy as far as the math goes.

> I said "transmission line" model, not "reflection" model. I want to
> clarify this because I don't want what I said to be interpreted as an
> endorsement of Cecil's alternate theories involving traveling waves.
> Implicit in what I said is also that the transmission line model or
> equations must be used correctly.

What's the difference between the transmission line model and
the reflection model?
--
73, Cecil http://www.qsl.net/w5dxp

3583. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:35:54 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <o_KdnWssacf_irrZRVnyvQ@bt.com>
Source record: 62244

```
> What's the difference between the transmission line model and
> the reflection model?
> --
> 73, Cecil
=======================================

No difference whatsoever - except that Cecil is obsessed with
reflections and he worships some guy named Corum. ;o)
----
Reg.
```

3584. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:49:44 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <f66e22h5mhv35i62qtso4udt0ek31iu143@4ax.com>
Source record: 62245

On Sun, 26 Mar 2006 18:03:26 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>Don't you know how to turn on the 'Current Phase' option when
>displaying EZNEC results. Do you need a tutorial?

This is YOUR work, not mine, thus it is YOUR problem, not mine.

>Trying to add those phases shows a lot of ignorance.

Ah! Leading with your chin again.

>
>> 3. The coil Vf shown on the web is 0.1375 is different than
>> eq (32) => 0.0078
>
>Sorry, you're wrong. eq(32) for this coil yields a VF of ~0.033

Can't do the math? Twice?

>which Dr. Corum claims to be accurate within about 10%.

10% 50% 59%? and now we're down to "pick a number, any number"

>> 4. refuting your own references (Corumï¿½).
>
>Dr. Corum's equation for the coil VF is at its *SELF-RESONANT*
>frequency, not anywhere else. Using it anywhere else is only
>a *VERY ROUGH* estimate. At the self resonant frequency reported
>by EZNEC, the VF calculates out to be ~0.055.

Thank you for making my point.

and the answer remains:
Strange?
No, 4 out of 4 stand as an amusing footnote.

3585. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:51:03 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <fl6e22ljbi29g709g8e5e72vk15n4ubmm6@4ax.com>
Source record: 62246

On Sun, 26 Mar 2006 18:04:56 GMT, "Tom Donaly"
<dtdonaly@sbcglobal.net> wrote:

> Cecil never actually reads his references

Hi Tom,

The legacy of conducting research by Xerox.

73's
Richard Clark, KB7QHC

3586. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:52:18 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <CWEVf.60370$Jd.2878@newssvr25.news.prodigy.net>
Source record: 62247

Reg Edwards wrote:
>>I'm glad to know that I can substitute a coil of wire every time I
>>need a transmission line. So tell me, Reg, what
>>are the specs on the coil I'd need to make a transmission line
>>transformer to match 75 ohms to 325.33 ohms?
>>73,
>>Tom Donaly, KA6RUH
>
> ====================================
> Every coil is a transmission line.
>
> But not every transmission line is a coil.
> ----
> Reg.
>
>

An answer worthy of a zen master. If you keep this
up, Reg, we'll all be cursed with enlightenment.
73,
Tom Donaly, KA6RUH

3587. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 22:57:46 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <hu6e22p13csbtkt143gpl1koni2kp5kue1@4ax.com>
Source record: 62248

On Sun, 26 Mar 2006 19:14:36 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>I've said it before: The delay
>through the coil is what it is and we don't know exactly what
>it is.

Is Popeye Descartes your latest personality?

3588. Re: Spam and worms

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 23:06:28 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <d67e22pms0lftldcs8lamreqnl8lfviivf@4ax.com>
Source record: 62249

On Sun, 26 Mar 2006 12:10:08 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>This one is apparently in the machine of someone who reads
>this newsgroup or at least has occasion to email some of the participants.

One of the horde of admirers that Cecil claims fills his in-basket
with congratulations over his admirable work?

And Cecil would have us believe they're such a timid group, too
intimidated to participate, but gleeful at his jests, quick turn of an
equation, and general good clubsmanship.

They must be from MENSA (but still using email? haven't they got it
down to telemailnesis yet? or is it telepostapathy? Sorry, my iq
just isn't up for the game....)

73's
Richard Clark, KB7QHC

3589. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 23:08:23 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <hl7e22pkcqbjtqu6dmamoj6t4qbao1jnok@4ax.com>
Source record: 62250

On Sun, 26 Mar 2006 22:16:57 +0100, "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>Every coil is a transmission line.
>
>But not every transmission line is a coil.

Looks like a zen worm has spam infected newsgroupspace.

3590. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 23:33:39 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122e96mpdv79b5f@corp.supernews.com>
Source record: 62251

Tom Donaly wrote:
>
> An answer worthy of a zen master. If you keep this
> up, Reg, we'll all be cursed with enlightenment.
> 73,
> Tom Donaly, KA6RUH

Funny you should say that. Made me think of the (not really correct) "zen archery" philosophy of defining the target as being wherever the arrow strikes. So the arrow always hits the target.

In reading this thread I find that line of reasoning familiar.

Roy Lewallen, W7EL

3591. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-26 23:46:00 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <YIFVf.63435$dW3.26313@newssvr21.news.prodigy.com>
Source record: 62252

Richard Clark wrote:
> Cecil Moore <mycall@hotmail.com> wrote:
>>Don't you know how to turn on the 'Current Phase' option when
>>displaying EZNEC results. Do you need a tutorial?
>
> This is YOUR work, not mine, thus it is YOUR problem, not mine.

It's my problem that you don't know how to turn on the
'Current Phase' option in EZNEC??? Just how do you propose
that I gain control over your computer? It states on the
graphic that the 'Current Phase' option is 'ON'.

>>Trying to add those phases shows a lot of ignorance.
>
> Ah! Leading with your chin again.

If you are really into adding up phase angles, then add
them up every inch. You will approach infinity as the sum.
Your approach is a lot like adding up power every inch
and declaring the transmission lines contains eighteen
gigawatts of power.
--
73, Cecil http://www.qsl.net/w5dxp

3592. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:23:28 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143419008.350010.61640@u72g2000cwu.googlegroups.com>
Source record: 62253

It appears that Cecil is back with many postings, but he seems to be ignoring answering my question. Perhaps he's unable to do so. Just so the lurkers understand that indeed it is possible to work through the phasor math, here goes. Here's exactly the scenario Cecil set up, quoted from his posting:

==========

"So to be perfectly clear, here is my statement re-worded using a 45 degree phase shift through the coil.

The forward current magnitude is equal at both ends of the coil.
The reflected current magnitude is equal at both ends of the coil.

At the bottom of the coil, the forward current is 1 amp at zero deg.
At the bottom of the coil, the reflected current is 1 amp at zero deg.
At the bottom of the coil, the standing wave current is 2 amps at zero deg.

At the top of the coil, the forward current is 1 amp at -45 deg.
At the top of the coil, the reflected current is 1 amp at +45 deg.
At the bottom of the coil, the standing wave current is 1.4 amp at zero deg."

==========

OK, so the difference in "FORWARD" current from the bottom to the top is:
fwd.bottom.current - fwd.top.current
= 1A at 0 degrees - 1 amp at -45 degrees
= 1+j0 - sqrt(.5)-j*sqrt(.5)
= 1-sqrt(.5) + j*sqrt(.5)
(about 0.765 at 67.5 degrees)

The difference in "REFLECTED" current from the bottom to the top is:
refl.bottom.current - refl.top.current
= 1A at 0 degrees - 1 amp at +45 degrees
= 1+j0 - sqrt(.5)-j*sqrt(.5)
= 1-sqrt(.5) - j*sqrt(.5)

The SUM of these two differences is:
[1-sqrt(.5) + j*sqrt(.5)] + [1-sqrt(.5) - j*sqrt(.5)]
= 2 - 2*sqrt(.5) + j0
= 2 - sqrt(2) + j0
= 2 - sqrt(2) at zero degrees

The standing wave current at the bottom of the coil is 2 amps just as Cecil suggests at one point: It's the sum of the "forward" and "reflected":
net current at the bottom = sw.bottom.current
= 1+j0 + 1+j0
= 2+j0
= 2 at zero degrees

Presumably Cecil meant that the standing wave current at the TOP (not the BOTTOM) of the coil is 1.4 amps at 0 degrees. That's close, but more exactly, it's
net current at the top = sw.top.current
= sqrt(.5)-j*sqrt(.5) = sqrt(.5)+j*sqrt(.5)
= 2*sqrt(.5)
= sqrt(2)
= sqrt(2) at zero degrees.

So the difference in net current (that is, the difference in the standing wave current) between the top and the bottom of the coil in this example is exactly:

sw.bottom.current - sw.top.current
= 2 at zero degrees - sqrt(2) at zero degrees
= 2 - sqrt(2) at zero degrees

So, we see that the difference in current between the bottom and the top is exactly the same, independent of whether we just use the standing-wave currents, or the currents in the "forward" travelling wave plus the currents in the "reflected" wave. That it's also
exactly the same answer you get by looking at a full cycle of instantaneous currents is left as an exercise (fairly simple) for the reader.

Either way, there is a difference, and that current must go somewhere. It should be pretty easy to account for it. In fact, it's not even very hard to predict fairly accurately in the case of a loading coil in an antenna perpendicular to a ground plane or equivalently in a symmetrical doublet.

Cheers,
Tom

3593. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:37:48 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <Ga-dnbMUyavhr7rZnZ2dnUVZ_vednZ2d@adelphia.com>
Source record: 62254

Cecil Moore wrote:
(snip)
> Here's what EZNEC reports as the phase shift through the coil
> in the traveling wave antenna previously tested at 5.89 MHz.
>
> 5.5 MHz: 14.1 deg, 5.89 MHz: 15.7 deg, 6 MHz: 16.2 deg,
> 7 MHz: 21.4 deg, 8 MHz: 29.5 deg, 9 MHz: 45.9 deg,
> 10 MHz: 89 deg, 11 MHz: 141.4 deg, 12 MHz: 163.0 deg,
> 13 MHz: 172.3 deg, 13.7 MHz: 183.82 deg.

Here is that list repeated in units of time, instead of degrees:

MHz ns delay
5.5 7.1
5.89 7.4
6 7.5
7 8.5
8 10.2
9 14.2
10 24.7
11 35.7
12 37.7
13 36.8
13.7 37.3

I would have to graph this on a log frequency plot to see the
frequency breakpoints, but I think this looks a lot like a short piece
of transmission line below about 6 MHz and like a resonator above
that. I expect the delay to start to fall at higher frequencies as
the turn-to-turn capacitance takes over.

What do you see?

3594. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:41:13 UTC
From: jawod <jawod@fuse.net>
Message-ID: <d5b$442734bf$453d9423$10323@FUSE.NET>
Source record: 62255

N7ZZT - Eric Oyen wrote:
> artie wrote:
>
>
>
>>Helium is for pansies. Use hydrogen; it won't leak as fast (really --
>>those heliums are solitary little sneaky bastards and will get out of
>>anything, while hydrogens are diatomic and tend to stick around
>>longer).
>
> pardon me, but have you looked at the periodic table lately?
>
> Hydrogen is made up of a single proton and a single electron. it tends to
> leak through just about any material regardless of thickness. helium, OTOH,
> is a construct of a proton, a neutron and a single electron (may have more
> than one depending on isotope, etc) and will tend not to leak nearly as
> much.
>
> Hydrogen is far more plentiful in the environment, but happens to be quite
> flammable (read that as EXPLOSIVE!). Helium is not flammable and much
> safer, though a bit harder to come by (hence its cost).
>
>
last time I checked Helium has 2 protons and 2 electrons. I think the
previous poster implied that hydrogen exists as molecular hydrogen: H2,
as opposed to He that is mono-atomic.

However, you have the better point: Hydrogen spells danger. Hydrogen,
Hindenburg,...If being a survivor means being a pansy...cool.

3595. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:48:41 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <JDGVf.51063$F_3.50440@newssvr29.news.prodigy.net>
Source record: 62256

K7ITM wrote:
> OK, so the difference in "FORWARD" current from the bottom to the top
> is:
> fwd.bottom.current - fwd.top.current
> = 1A at 0 degrees - 1 amp at -45 degrees
> = 1+j0 - sqrt(.5)-j*sqrt(.5)
> = 1-sqrt(.5) + j*sqrt(.5)
> (about 0.765 at 67.5 degrees)

That is truly magic. Someone must have slept through class that
day.

Good grief! You can't subtract two currents that are a foot apart
from each other. Currents superpose at a point. Currents from
each end of the coil a foot apart don't superpose. They don't
even know each other exist. Good Grief!

```
Ifor=1A at 0 deg Ifor=1A at -45 deg
-----------------X-/////////-Y------------------
Iref=1A at 0 deg Iref=1A at +45 deg
```

The forward current superposes with the reflected current at the
bottom of the coil to get 2 amps at zero degrees. The forward
current superposes with the reflected current at the top of the
coil to get 1.4 amps at zero degrees. The delay through the coil
is 45 degrees.

Neglecting losses:
The energy in the forward wave is the same at the top and bottom
of the coil. The energy in the reflected wave is the same at
the top and bottom of the coil. There is zero net steady-state
energy storage between the top and bottom of the coil. There's
no RF battery there.
--
73, Cecil http://www.qsl.net/w5dxp

3596. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:56:09 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <4sde22h45dantbaoiud798i7o0vpkcmat5@4ax.com>
Source record: 62258

On Sun, 26 Mar 2006 23:46:00 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>>>Trying to add those phases shows a lot of ignorance.
>>
>> Ah! Leading with your chin again.
>
>If you are really into adding up phase angles, then add
>them up every inch.

Still leading with your chin?

Amazing how you dismiss the "important" stuff with ï¿½59% but want to
add every inch.

Why would ANYONE do what you suggest in the face of your outright
sloppy work?

3597. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 00:56:52 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <oLGVf.51064$F_3.9529@newssvr29.news.prodigy.net>
Source record: 62257

John Popelish wrote:
> I would have to graph this on a log frequency plot to see the frequency
> breakpoints, but I think this looks a lot like a short piece of
> transmission line below about 6 MHz and like a resonator above that. I
> expect the delay to start to fall at higher frequencies as the
> turn-to-turn capacitance takes over.
>
> What do you see?

I see something that resembles part of a sine wave with
a point of inflection (resembling a zero crossing) around
10 MHz. The phase shift around 10 MHz is 60 degrees per
MHz. The phase shift above and below 10 Mhz is lower.
I sure can see why the lumped circuit model is a total
and complete failure when applied at 10 MHz. I also can
see why Dr. Corum chose 15 degrees as his cutoff point.
--
73, Cecil http://www.qsl.net/w5dxp

3598. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 01:04:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <LSGVf.51066$F_3.50014@newssvr29.news.prodigy.net>
Source record: 62259

Richard Clark wrote:
> Why would ANYONE do what you suggest in the face of your outright
> sloppy work?

Columbus is famous for missing by 10,000 miles. :-) My 60%
accuracy is a heck of a lot more accurate than W7EL's phase
measurements using unchanging standing wave current phase.
--
73, Cecil http://www.qsl.net/w5dxp

3599. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 01:35:40 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <dffe22hi9qorfqjgnebmm650ijnpk4sijv@4ax.com>
Source record: 62260

On Mon, 27 Mar 2006 01:04:43 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>Columbus is famous for missing by 10,000 miles
appeal to antiquity to grant 4 orders of magnitude slop, hmmm?
Columbus was an Italian huckster who was pitching sloppy math to make
himself look authoritative. At least we've found a convergence there.

>My 60% accuracy is a heck of a lot more accurate than
An error of 50, 59 now 60% is not 60% accuracy and given:

On Sun, 26 Mar 2006 19:14:36 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>I've said it before: The delay
>through the coil is what it is and we don't know exactly what
>it is.

To say the delay is unknown, but you are 60% accurate is one for
warranting a dope slap from Lord Kelvinator.

3600. Re: Spam and worms

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 01:39:14 UTC
From: bg998@FreeNet.Carleton.CA
Message-ID: <e07fo2ece1@theodyn.ncf.ca>
Source record: 62261

Roy Lewallen (w7el@eznec.com) writes:
>
> ... If
> you've gotten one which has my address in one or both those lines, it
> means simply that both our addresses are in the victim's address book.
>

You have my sympathies, Roy. I know just what you mean. For six years I was heavily involved with the IARU Intruder Watch and, like you, my address was in a lot of people's address books, with the expected result whenever any of those computers became infected. One particularly embarrassing infection sent an infected message every few days to the U.S. FCC, and of course I would get the FCC's automatic reply saying that an "unacceptable attachment" had been deleted from "my" message to them. This went on for about six months and I was never sure whether it was just due to some idiot who never ran a virus scanner or was actually malicious. I suspect the latter. They say education would solve a lot of these problems but I have often wished there was some silver bullet that could be sent to the offending computers HI.

Good luck and 73,
... Martin VE3OAT

ex-IARU Region 2 Monitoring System Coordinator

3601. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 01:59:45 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143424785.018155.283600@v46g2000cwv.googlegroups.com>
Source record: 62262

Sorry you've missed the point, Cecil. I can only hope the lurkers get it.

(Aside: I'm not exactly sure what you mean by "no net steady-state energy storage." If that's true, then there's never ANY current in the inductor, because the energy stored in an inductor's magnetic field is i^2*L/2, and that's always positive for non-zero i.)

Cheers,
Tom

3602. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 02:43:07 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <Jc2dnf8L0J8xz7rZRVnyuQ@bt.com>
Source record: 62264

You are leading yourselves astray again.

Anything which produces a velocity factor which varies significantly
with frequency is INCORRECT.

The propagation delay (in nano-seconds) along a coil is a constant and
is independent of frequency.

It depends only on the physical dimensions of the coil, ie., on L and
C, which are fixed in a given situation.

This is just the same as on an ordinary transmission line.

Reg.

3603. Re: A Small Indoor FM Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 02:44:22 UTC
From: "Sal M. Onella" <salmonella@food.poisoning.org>
Message-ID: <akIVf.707$I%6.156@fed1read12>
Source record: 62263

"Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message
news:Xns9791BDA64496Edoldridgsprintca@64.59.135.159...
> "W. Watson" <wolf_tracks@invalid.com> wrote in
> news:LJlVf.5158$HW2.3572@newsread3.news.pas.earthlink.net:
>
> > I have a product called RadioShark that is like Tivo for radio. I'm in
> > an area where FM is a bit hard to get. I would like to receive at
> > least one station at 88.7 clearly. There are several in the 88 to 89
> > range that would do as well. It would be good to have an antenna that
> > does it. I definitely recall a simple dipole that looks like a T that
> > is made from some TV lead wire. That's been hooked to an FM rcvr not
> > far from me, but has never worked to well. Possibly because I have to
> > mount it on a nearby wall and under a shelf. It seems to me that years
> > ago that a rabbit ears TV antenna included FM. Certainly the length of
> > the ears were about right. They seem harder to come by. Something like
> > a desktop model would be good, since RS is hooked into my computer in
> > the den. Any suggestions?
> >
> > Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
> > (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
> > Obz Site: 39° 15' 7" N, 121° 2' 32" W, 2700 feet
>
> Take 66 inches of twinlead. Bare the ends back about 1.5 inches on each
> end and short them. Cut into one side only in the center and bare the
> cut wire. Connect it to the 300 ohm input of your tuner with more 300
> ohm line, or insert a balun and connect with RG6 coax.
>
> Placement may be as important as antenna design.

... and if your home is like mine (also CA), it's stucco, which has an
internal
supporting wire frame that acts as a shield to RF. Putting the antenna
outside
may be required. Is your listenening room on the same side of the house as
the
transmitter? That would help.

I live in a metropolitan area, so I get away with sloppy and careless.
You
may need to be neat and careful. <g>

You can buy dedicated multi-element antennas just for the FM band.
http://www.starkelectronic.com/fmpage.htm should get you started if
you take that route.

3604. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 03:03:04 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143428584.213890.109730@e56g2000cwe.googlegroups.com>
Source record: 62265

A bit more on this...

I trust it's an accurate summary to say that Cecil gave us the "forward" and "reflected" currents at both ends of a coil, and correctly deduced the standing-wave currents at each end from those. But given that information, Cecil is unable (and believes it is impossible) to determine the net charge in the volume containing the coil as a function of time (to within a constant, at least), even though the the wires in which we know the currents are the only way for charge to get in and out of that volume. I do hope we can at least agree that current is the rate at which charge passes a point...

And I do hope most folk tuned in here don't have so much trouble with it.

Farewell, goodbye, auf wiedersehen, adieu...

Tom

Cecil wrote:
"K7ITM wrote:
> OK, so the difference in "FORWARD" current from the bottom to the top
> is:
> fwd.bottom.current - fwd.top.current
> = 1A at 0 degrees - 1 amp at -45 degrees
> = 1+j0 - sqrt(.5)-j*sqrt(.5)
> = 1-sqrt(.5) + j*sqrt(.5)
> (about 0.765 at 67.5 degrees)

That is truly magic. Someone must have slept through class that day.

Good grief! You can't subtract two currents that are a foot apart from each other. Currents superpose at a point. Currents from each end of the coil a foot apart don't superpose. They don't even know each other exist. Good Grief!

```
Ifor=1A at 0 deg Ifor=1A at -45 deg
-----------------X-/////////-Y-----------------
Iref=1A at 0 deg Iref=1A at +45 deg
```

The forward current superposes with the reflected current at the bottom of the coil to get 2 amps at zero degrees. The forward current superposes with the reflected current at the top of the coil to get 1.4 amps at zero degrees. The delay through the coil is 45 degrees.

Neglecting losses:
The energy in the forward wave is the same at the top and bottom
of the coil. The energy in the reflected wave is the same at
the top and bottom of the coil. There is zero net steady-state
energy storage between the top and bottom of the coil. There's
no RF battery there.
--
73, Cecil http://www.qsl.net/w5dxp "

3605. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 03:31:28 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <k0JVf.63443$dW3.18597@newssvr21.news.prodigy.com>
Source record: 62266

Reg Edwards wrote:
> The propagation delay (in nano-seconds) along a coil is a constant and
> is independent of frequency.

MOM seems to disagree.
--
73, Cecil http://www.qsl.net/w5dxp

3606. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 03:32:48 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <A1JVf.63444$dW3.41956@newssvr21.news.prodigy.com>
Source record: 62267

K7ITM wrote:
> Sorry you've missed the point, Cecil. I can only hope the lurkers get
> it.

If the lurkers think one can add or subtract the forward current
at both ends of the coils, as you did, I feel sorry for them.
--
73, Cecil http://www.qsl.net/w5dxp

3607. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 03:45:51 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <PdJVf.63446$dW3.27071@newssvr21.news.prodigy.com>
Source record: 62268

K7ITM wrote:
> Cecil is unable (and believes it is
> impossible) to determine the net charge in the volume containing the
> coil as a function of time (to within a constant, at least), even
> though the the wires in which we know the currents are the only way for
> charge to get in and out of that volume.

THERE IS NO RF BATTERY STORING ENERGY! THERE IS ZERO LONG TERM
ACCUMULATION OF CHARGE! Neglecting losses, energy in exactly equals
energy out over the long term.

The fact that 2 amps of standing wave current exists at the bottom of
the coil and 1.4 amps of standing wave current exists at the top of
the coil doesn't imply any long term accumulation of charge. Long
term accumulation of charge in a coil is impossible.
--
73, Cecil http://www.qsl.net/w5dxp

3608. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 04:57:12 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122es5c92v46f68@corp.supernews.com>
Source record: 62269

Thanks, Tom, for taking the trouble to go through the numbers. As I said earlier, most of us know, and all engineers certainly should know, superposition requires that results from an analysis using the total current must be the same as the sum of the results from separate analyses using forward and reflected currents (or any other components whose sum is the total current). Your analysis shows this, as it should.

Roy Lewallen, W7EL

3609. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 05:14:54 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <b2se2292krcrlqbbma08j1gltnibfcp3ip@4ax.com>
Source record: 62270

On Sat, 25 Mar 2006 17:43:08 +0000, Ian White GM3SEK
<gm3sek@ifwtech.co.uk> wrote:

>>First, several years ago, came the shocking observation that the
>>current into a coil is not the same as the current out of it. Somewhere
>>along the debate, this practical measurement was then expressed to be
>>in conflict with Kirchhoff's theories. ...
>
>So much has been said in this debate - and this is at least the third or
>fourth re-make of the whole show - that I honestly cannot remember if
>the exact words that Richard reports were ever used.
>

Hi Ian (if you are still with us),

I stumbled upon the context in this snipe hunt:

On Sun, 05 Mar 2006 20:03:14 GMT, Cecil Moore <mycall@arrl.net> wrote:

>What would
>Kirchhoff have thought about a coil with 0.1 amp
>at the bottom and 0.7 amps at the top? It certainly
>doesn't mean that 0.6 amps is flowing sideways.

To explain the application of "snipe hunt," this is a term suggesting
that someone is being set upon a fool's mission (an impossible goal
employing absurd tools). In the Navy is was catching sea bats, or
being on mail buoy watch.

73's
Richard Clark, KB7QHC

3610. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 06:32:24 UTC
From: Ian White GM3SEK <gm3sek@ifwtech.co.uk>
Message-ID: <gXIPpSF4b4JEFA2g@ifwtech.co.uk>
Source record: 62271

Richard Clark wrote:
>On Sat, 25 Mar 2006 17:43:08 +0000, Ian White GM3SEK
><gm3sek@ifwtech.co.uk> wrote:
>
>>>First, several years ago, came the shocking observation that the
>>>current into a coil is not the same as the current out of it. Somewhere
>>>along the debate, this practical measurement was then expressed to be
>>>in conflict with Kirchhoff's theories. ...
>>
>>So much has been said in this debate - and this is at least the third or
>>fourth re-make of the whole show - that I honestly cannot remember if
>>the exact words that Richard reports were ever used.
>>
>
>Hi Ian (if you are still with us),
>
Yeah, still here... and still wondering why...

>I stumbled upon the context in this snipe hunt:
>
>On Sun, 05 Mar 2006 20:03:14 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
>>What would
>>Kirchhoff have thought about a coil with 0.1 amp
>>at the bottom and 0.7 amps at the top? It certainly
>>doesn't mean that 0.6 amps is flowing sideways.
>
>To explain the application of "snipe hunt," this is a term suggesting
>that someone is being set upon a fool's mission (an impossible goal
>employing absurd tools). In the Navy is was catching sea bats, or
>being on mail buoy watch.

And here, it's about chasing single isolated comments.

Moral: don't hunt snipe unless you see a whole flock of 'em.

--
73 from Ian GM3SEK 'In Practice' columnist for RadCom (RSGB)
http://www.ifwtech.co.uk/g3sek

3611. Signal Strength Meter for Mobile Phones

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 06:54:22 UTC
From: Mark
Message-ID: <964e2251k12b5qdluiracisc0fnkhdtoiu@4ax.com>
Source record: 62272

I currently offer a service for Mobile Phone users in rural/remote areas, where I fit a Yagi antenna for people with poor reception problems. At the moment I use a Mobile Phone's signal strength reading (along with a map and compass) to locate the strongest signal from the nearest base station (the region where I work, there is only one service provider). Because these readings are a bit slow to respond, I would like to build/buy a simple signal strength meter to be a bit more accurate, when setting up these antenna's. I either need something with a meter or even simpler (and maybe better) headphones listening to the familiar signals sent out by these things, to find the strongest signal. Because I work in very remote areas normally, I am guessing that the base station signals, should not be that hard to distinguish from the normal mish mash of mobile phone signals. Would anybody be kind enough to supply me with a diagram or a web site etc, to help me on my way? PS 950Mhz.

3612. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 10:08:48 UTC
From: w8ji@akorn.net
Message-ID: <1143454128.678462.205540@t31g2000cwb.googlegroups.com>
Source record: 62273

Richard Clark wrote:
> I stumbled upon the context in this snipe hunt:
>
> On Sun, 05 Mar 2006 20:03:14 GMT, Cecil Moore <mycall@arrl.net> wrote:
>
> >What would
> >Kirchhoff have thought about a coil with 0.1 amp
> >at the bottom and 0.7 amps at the top? It certainly
> >doesn't mean that 0.6 amps is flowing sideways.

I think everyone here except Cecil knows where the current goes.

If Cecil admits to displacement currents, he has to also admit his
argument about reflected waves is incomplete.

73 Tom

3613. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 11:30:07 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <122fiksgnttv836@corp.supernews.com>
Source record: 62274

Thank you David, I was afraid that was what I was going to hear.
Everything, it seems, that looks as if it might be the one to go
chasing after, has them little resistors connecting one side to
another. Oh well, back to the drawing boards es think tank!

Butch Magee KF5DE

David J Windisch wrote:
> Butch, it's a folded-up length of folded-dipole sort-of with a
> dummy-load/power-absorber in the center. RTMC for the disclaimers.
> They're there, believe me.
>
> To play with something like it more easily and inexpensively, attach a piece
> of coax to your rig, put a dummy load at the far end, and connect a random
> length of wire to the center conductor of the coax, at the dummy load. You
> could connect a similar length of wire to the outer coax conductor . . . .
> maybe a total of 7.5M of wire in your new terminated dipole ;o)
>
> Hth. 73, Dave, N3HE
>
> "Butch Magee" <lynyrd@cableone.net> wrote in message
> news:4424ADC1.9050803@cableone.net...
>
>>(as usual, I'm in great need)
>>
>>I have great problems in trying to post a photo/webpage to the group to
>>help identify and discover dimentions to the "Wideband Folded Loop" that
>>is somewhat described in the artical by RF-Systems Inc.
>>
>
> SNIP
>
>

3614. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 11:35:04 UTC
From: Butch Magee <lynyrd@cableone.net>
Message-ID: <122fiu74tl67cc3@corp.supernews.com>
Source record: 62275

Buck wrote:

Buck, I have discovered, as you have, that all search engines were not created equal. I'm going to try the new one "ask" (I think thats the name) and see if it works equally as confused as the others.

Butch

> On Sat, 25 Mar 2006 08:51:55 -0500, Buck <not@this.time> wrote:
>
>
>>On Fri, 24 Mar 2006 20:41:05 -0600, Butch Magee <lynyrd@cableone.net>
>>wrote:
>>
>>
>>>(as usual, I'm in great need)
>>>
>>>I have great problems in trying to post a photo/webpage to the group to
>>>help identify and discover dimentions to the "Wideband Folded Loop" that
>>>is somewhat described in the artical by RF-Systems Inc.
>>>
>>>Cecil, if you would do a google search on this statement "WFL Folded
>>>Loop Antenna", it will bring up the aformentioned artical and photograph.
>>
>>
>>S N I P
>>
>>
>>
>>Your search - "WFL Folded Loop Antenna" - did not match any
>>documents.
>
>
>
> Found it: Wideband Folded Loop

3615. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 12:53:00 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <MeRVf.59917$H71.46585@newssvr13.news.prodigy.com>
Source record: 62276

Roy Lewallen wrote:
> Thanks, Tom, for taking the trouble to go through the numbers. As I said
> earlier, most of us know, and all engineers certainly should know,
> superposition requires that results from an analysis using the total
> current must be the same as the sum of the results from separate
> analyses using forward and reflected currents (or any other components
> whose sum is the total current). Your analysis shows this, as it should.

Roy, would you please explain what is the technical significance
of Tom's superposing the forward wave of 1 amp at zero degrees at
the bottom of the coil with the forward wave of 1 amp at 45 degrees
at the top of the coil when those two currents are separated in
space by 12 inches and separated in time by 45 degrees of a cycle?

Doesn't the superposition principle require the two signals to exist
in the same space-time? The misconceptions being presented here are
unbelievable but apparently exist in the engineering community.
--
73, Cecil http://www.qsl.net/w5dxp

3616. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 13:42:12 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <UYRVf.9537$tN3.50@newssvr27.news.prodigy.net>
Source record: 62277

w8ji@akorn.net wrote:

> Richard Clark wrote:
>
>>I stumbled upon the context in this snipe hunt:
>>
>>Cecil Moore <mycall@arrl.net> wrote:
>>>What would
>>>Kirchhoff have thought about a coil with 0.1 amp
>>>at the bottom and 0.7 amps at the top? It certainly
>>>doesn't mean that 0.6 amps is flowing sideways.
>
> I think everyone here except Cecil knows where the current goes.

Those are standing wave currents, Tom. What is it about
func(kx)*func(wt) that you don't understand?

Take a look at the standing wave current distribution on a one
wavelength dipole at:

http://www.qsl.net/w5dxp/1WLDIP.GIF

The position in which a coil is installed in the standing wave
environment determines the magnitudes and phases of the currents
at the top and bottom of the coil. No magic displacement current
is required. If magic displacement current is not required in
a transmission line, why is it required in a coil? Hint: because
the lumped-circuit model is flawed.

> If Cecil admits to displacement currents, he has to also admit his
> argument about reflected waves is incomplete.

We can assume zero displacement current without much changing anything.
In the example at the top of this posting, there sure isn't 0.6 amps
of displacement current. I'm beginning to believe that you don't
understand superposition of forward and reflected waves. That would
explain a lot.

In the above example, the forward and reflected currents superpose to
0.7 amps at the top of the coil. That is simply closer to the standing
wave current maximum point. No displacement current required.

The forward and reflected currents superpose to 0.1 amp at the
bottom of the coil. That is simply closer to the standing wave
current minimum point. No displacement current required.

Exactly the same thing happens along a transmission line with reflections. There's negligible displacement current between the 0.1 amp point and the 0.7 amp point on a transmission line. For exactly the same reason, there can be negligible displacement current in the coil. The forward current and reflected current superpose in a coil just as they do in a transmission line.

If you would use the proper model and you will not need to resort to any magic displacement current which is just a patch on a gaping hole in the flawed lumped-circuit model.
--
73, Cecil http://www.qsl.net/w5dxp

3617. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 13:44:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <i%RVf.9538$tN3.5925@newssvr27.news.prodigy.net>
Source record: 62278

w8ji@akorn.net wrote:

>>If the lurkers think one can add or subtract the forward current
>>at both ends of the coils, as you did, I feel sorry for them.
>
> I feel sorry for anyone who has to deal with you on a daily basis.

The technical truth hurts, huh?

So Tom, please tell us the technical meaning of superposing two
currents separated in space by 12 inches and separated in time
by 45 degrees.
--
73, Cecil http://www.qsl.net/w5dxp

3618. layout import/export for Orcad to ADS2004a

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 13:55:41 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143467741.662748.125640@j33g2000cwa.googlegroups.com>
Source record: 62279

hello...

can you please help me with what to do to convert orcad files to
ads2004a...
thanks so much!

3619. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 14:09:39 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <DmSVf.9540$tN3.5910@newssvr27.news.prodigy.net>
Source record: 62280

w8ji@akorn.net wrote:
> I feel sorry for anyone who has to deal with you on a daily basis.

The distributed network model, with its superposition of forward
and reflected waves, explains everything without having to
resort to displacement currents.

The distributed network model is more powerful than the lumped
circuit model. The lumped circuit model is a subset of the
distributed network model.

When the two models agree, all is well. When the two models
disagree, the distributed network model is right and the
lumped circuit model is wrong.

You assume displacement currents exist because your model
requires them, not because they exist in reality. The distributed
network model illustrates just how unimportant displacement
currents really are. In the distributed network model, displacement
currents are often omitted as negligible.

In a high-Q coil, in a standing wave environment, radiation from
and losses in the coil are often negligible and can be ignored.
The large part of what happens to the standing wave current is
simply superposition of the forward and reflected waves. No
magic explanations required.

The delay through a real world 75m bugcatcher coil, predicted by
the distributed network model, is tens of degrees, not the faster
than light speed predicted by the lumped circuit model.
--
73, Cecil http://www.qsl.net/w5dxp

3620. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 14:16:50 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <mtSVf.635608$qk4.283733@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62281

Cecil Moore wrote:
> K7ITM wrote:
>
>> Cecil is unable (and believes it is
>> impossible) to determine the net charge in the volume containing the
>> coil as a function of time (to within a constant, at least), even
>> though the the wires in which we know the currents are the only way for
>> charge to get in and out of that volume.
>
>
> THERE IS NO RF BATTERY STORING ENERGY! THERE IS ZERO LONG TERM
> ACCUMULATION OF CHARGE! Neglecting losses, energy in exactly equals
> energy out over the long term.
>
> The fact that 2 amps of standing wave current exists at the bottom of
> the coil and 1.4 amps of standing wave current exists at the top of
> the coil doesn't imply any long term accumulation of charge. Long
> term accumulation of charge in a coil is impossible.

Cecil,

I believe the long term average current is also zero. Therefore all of
these coils and antennas are totally inert. Problem solved.

It is a mystery why the discussion randomly switches from degrees of
phase and nanoseconds of time delay to long term averages, RMS, and
"net" something or other.

If you don't understand accumulation of charge in *every* AC and RF
circuit then there is little hope that you will ever get to an
understanding of the now-infamous "current through coil" problem.

73,
Gene
W4SZ

3621. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 14:45:20 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <4USVf.9543$tN3.3119@newssvr27.news.prodigy.net>
Source record: 62282

Gene Fuller wrote:
> If you don't understand accumulation of charge in *every* AC and RF
> circuit then there is little hope that you will ever get to an
> understanding of the now-infamous "current through coil" problem.

I understand the movement of charge within a cycle, Gene. But
it is irrelevant to the discussion and just another one of
your strawmen erected as a diversion away from the relevant
issues. Why do you think such a transparent diversion
would work?

During a cycle, energy is obviously exchanged between the
E-fields and H-fields. For a 1/4WL antenna, that means
migration from end to end. But everything being discussed
so far are RMS values. EZNEC reports and displays RMS values
of current. All of the measurements reported so far were
RMS values.

There is no net storage of energy in the coil based on the
product of the RMS voltage and the RMS current. Everything
about RMS standing wave current can be understood simply by
superposing the RMS values of forward and reflected current.

func(kx+wt) + func(kx-wt) = func(kx) * func(wt)

You were the one who posted that information. I don't
think you quite realized what a boost that was for the
distributed network model. The lumped circuit model has
no provisions for accomodating the above equation and
presupposes faster than light propagation.

Your next logical diversion will probably be - trying to track
the position and velocity of an individual electron in an
antenna. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3622. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 15:26:39 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <PuTVf.33695$bn3.32446@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62283

Cecil,

Your response shows you don't understand, or more likely, you are faking
a non-understanding. Charge storage is virtually equivalent to voltage.
Are you suggesting that there is no RMS voltage in these configurations?

And as to your point about my "boost" of the distributed model: I am
neither boosting nor de-boosting any particular model. I don't believe
there is another person participating in this thread who is claiming one
model trumps the other, except you. Each model has its place, but that
place is dictated only by mathematical convenience. It could be really
tedious to set up complex problems with the less convenient model, but
that does not mean it cannot be done.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> If you don't understand accumulation of charge in *every* AC and RF
>> circuit then there is little hope that you will ever get to an
>> understanding of the now-infamous "current through coil" problem.
>
>
> I understand the movement of charge within a cycle, Gene. But
> it is irrelevant to the discussion and just another one of
> your strawmen erected as a diversion away from the relevant
> issues. Why do you think such a transparent diversion
> would work?
>
> During a cycle, energy is obviously exchanged between the
> E-fields and H-fields. For a 1/4WL antenna, that means
> migration from end to end. But everything being discussed
> so far are RMS values. EZNEC reports and displays RMS values
> of current. All of the measurements reported so far were
> RMS values.
>
> There is no net storage of energy in the coil based on the
> product of the RMS voltage and the RMS current. Everything
> about RMS standing wave current can be understood simply by
> superposing the RMS values of forward and reflected current.
>
> func(kx+wt) + func(kx-wt) = func(kx) * func(wt)

>
> You were the one who posted that information. I don't
> think you quite realized what a boost that was for the
> distributed network model. The lumped circuit model has
> no provisions for accomodating the above equation and
> presupposes faster than light propagation.
>
> Your next logical diversion will probably be - trying to track
> the position and velocity of an individual electron in an
> antenna. :-)

3623. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 15:27:03 UTC
From: w8ji@akorn.net
Message-ID: <1143473223.091730.239610@g10g2000cwb.googlegroups.com>
Source record: 62284

If you guys want to see Cecil in action in other forums,
look at his behavior in this thread:

http://www.qrz.com/ib-bin/ikonboard.cgi?s=89cee78e01b7db1337b7ce9095fe2786;act=ST;f=5;t=115870

This is obviously a deeply personal issue with Cecil, and has nothing
to do with science or trying to communicate.

No matter what happens here, Cecil will run off someplace else and
report everyone supports him and give some personal argument why. I
suspect that is becuase he really hasn't a leg to stand on technically
and he knows it.

73 Tom

3624. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:02:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <q0UVf.48663$2O6.12999@newssvr12.news.prodigy.com>
Source record: 62285

Gene Fuller wrote:
> Your response shows you don't understand, or more likely, you are faking
> a non-understanding. Charge storage is virtually equivalent to voltage.
> Are you suggesting that there is no RMS voltage in these configurations?

Gene, everyone knows that an inductor stores energy during part
of a cycle and gives up that same energy, minus losses, during
the other part of the cycle. That knowledge is irrelevant to
the present discussion. Your attempt at a diversion is more than
transparent. Why don't you discuss the real issues?

> I don't believe
> there is another person participating in this thread who is claiming one
> model trumps the other, except you.

I suspect those people know when the lumped circuit model fails.
Your own posting about standing wave current phase proved that
W7EL's phase measurements were meaningless. Here's what you said:

Regarding the func(kx)*func(wt) standing wave current term:

> Gene Fuller, W4SZ wrote:
>> In a standing wave antenna problem, such as the one you describe, there is no
>> remaining phase information. Any specific phase characteristics of the traveling
>> waves died out when the startup transients died out.
>>
>> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be seen again.
>>
>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase. The so-called "phase reversal" in longer antennas is
>> not really about phase either. It is merely a representation of the periodic
>> sign reversal seen in a cosine function.

That is technical fact. Thanks for stating it.
--
73, Cecil http://www.qsl.net/w5dxp

3625. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:02:45 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <N4ydnT_JPuEikbXZRVnyvw@bt.com>
Source record: 62286

"Butch Magee" <lynyrd@cableone.net> wrote in message
news:122fiu74tl67cc3@corp.supernews.com...
> Buck wrote:
>
> Buck, I have discovered, as you have, that all search engines were
not
> created equal. I'm going to try the new one "ask" (I think thats
the
> name) and see if it works equally as confused as the others.
>
> Butch
>
> > On Sat, 25 Mar 2006 08:51:55 -0500, Buck <not@this.time> wrote:
> >
> >
> > >On Fri, 24 Mar 2006 20:41:05 -0600, Butch Magee
<lynyrd@cableone.net>
> > >wrote:
> > >
> > >
> > >(as usual, I'm in great need)
> > >
> > >I have great problems in trying to post a photo/webpage to the
group to
> > >help identify and discover dimentions to the "Wideband Folded
Loop" that
> > >is somewhat described in the artical by RF-Systems Inc.
> > >
> > >Cecil, if you would do a google search on this statement "WFL
Folded
> > >Loop Antenna", it will bring up the aformentioned artical and
photograph.
> > >
==========
I need help too.

Could some kind person please describe in detail how the "WFL Folded
Loop Antenna" is folded? It is not at all clear from the description
and photograph. Originally I assume the loop is square.

Reg.

3626. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:10:30 UTC
From: AC7PN <brunius@rockisland.com>
Message-ID: <1143475830.028569.213520@i40g2000cwc.googlegroups.com>
Source record: 62287

It is not the size of the atom that is relevant here. The important
thing is the size of the molecule. Helium is a one atom molecule while
Hydrogen is a two atom molecule. A single atom is much smaller than a
two atom molecule. Hence helium being the only single atom molecule in
existence, it is the king of jail break being able to slip through the
bars of any plastic prision cell.

Bob Brunius
Orcas Island, WA
AC7PN

N7ZZT - Eric Oyen wrote:
> artie wrote:
>
>
> >
> > Helium is for pansies. Use hydrogen; it won't leak as fast (really --
> > those heliums are solitary little sneaky bastards and will get out of
> > anything, while hydrogens are diatomic and tend to stick around
> > longer).
> pardon me, but have you looked at the periodic table lately?
>
> Hydrogen is made up of a single proton and a single electron. it tends to
> leak through just about any material regardless of thickness. helium, OTOH,
> is a construct of a proton, a neutron and a single electron (may have more
> than one depending on isotope, etc) and will tend not to leak nearly as
> much.
>
> Hydrogen is far more plentiful in the environment, but happens to be quite
> flammable (read that as EXPLOSIVE!). Helium is not flammable and much
> safer, though a bit harder to come by (hence its cost).
>
>
> --
> DE N7ZZT
> Eric Oyen
> Phoenix, Arizona
> e-mail: n7zzt(at)hotmail(dot)com
> the difference between intelligence and stupidity is that intelligence
> has its limits.

3627. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:16:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ydUVf.48664$2O6.41523@newssvr12.news.prodigy.com>
Source record: 62288

w8ji@akorn.net wrote:
> This is obviously a deeply personal issue with Cecil, and has nothing
> to do with science or trying to communicate.

Technical facts *are* a deeply personal issue with me. So I ask
you the same question here: When are you going to correct the
technical errors on your web page? The delay through a 75m
mobile bugcatcher coil is tens of degrees, not faster than the
speed of light. Your chosen model has you hoodwinked into
assuming the proof. Its presuppositions cannot be used as proof
of anything which is all the proof you have ever presented.

Please note that nobody has made valid measurements of the delay
through a loading coil. The closest thing to a valid measurement
presented thus far is the EZNEC simulation on my web page at:

http://www.qsl.net/w5dxp/current.htm

which I updated just this morning. I'm hoping some objective person
will make the traveling wave measurements and report them here. And
I'm willing to predict it won't be the people defending the lumped
circuit model for fear of what they will measure.

> No matter what happens here, Cecil will run off someplace else and
> report everyone supports him and give some personal argument why. I
> suspect that is becuase he really hasn't a leg to stand on technically
> and he knows it.

Neither you, not anyone else, has been able to poke a hole in the
distributed network/reflection model. Wonder why that is? When
there is a disagreement between the distributed network model
and the lumped circuit model, the distributed network model
wins every time because that is prima facie evidence that the lumped
circuit model has ceased to function under the given conditions.

Why are your postings so lacking in technical content?
--
73, Cecil http://www.qsl.net/w5dxp

3628. Capture Area Vs Aperture

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:19:50 UTC
From: Caveat Lector <UALLBeware@9984reader.com>
Message-ID: <zgUVf.14372$6a1.12191@fed1read04>
Source record: 62289

Ok I screwed up by referring to the Sommer antenna site for Capture Area

But I was taught that antenna gain is a function of Aperture - part of the classic radar range equation
https://ewhdbks.mugu.navy.mil/2waymon.htm

For Aperture discussion see URL:
https://ewhdbks.mugu.navy.mil/ANTENNAS.HTM

So would be interested in your comments on Antenna aperture and antenna gain and capture area

--
CL -- I doubt, therefore I might be !

3629. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:23:12 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <122g469rdtronff@corp.supernews.com>
Source record: 62290

Dear Dave Oldridge (no call sign given):

Interesting? Yes, but it has been done in radio astronomy and many years
ago. Receivers were well over 10 Mm apart and signals were recorded along
with time signals.

73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net

"Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message

<snip>
> It gets a bit interesting to implement, though, if the antennas are 2000
> miles apart!
>
> --
> Dave Oldridge

3630. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:29:00 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <g23g229q930jd2pd9b91fs7soehcf878ou@4ax.com>
Source record: 62291

On Mon, 27 Mar 2006 13:42:12 GMT, Cecil Moore <mycall@hotmail.com>
wrote:

>We can assume zero displacement current without much changing anything.

You can also guarantee the injected slop, then you can roll back on
your heels and utter "not much is changed."

This has all the irony of Galileo fighting for his right to mumble:
"If we assume we revolve around Mercury....
then that's close enough isn't it?"
Vatican:
Less than 59% error, fer sure. Is that your final answer?

>Exactly the same thing happens along a transmission line with

All of your claims of accuracy fall wildly short of "exactly." ;-)

>If you would use the proper model and you will not need to resort
>to any magic displacement current which is just a patch on a gaping
>hole in the flawed lumped-circuit model.

Let's see, this logic flows from the original misapplication of
Kirchhoff's laws, forcing them onto the lumped load, and then blaming
the lumped load for its poor application.

Thread buster umpty-ump.

3631. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:38:17 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ZxUVf.48672$2O6.3182@newssvr12.news.prodigy.com>
Source record: 62292

w8ji@akorn.net wrote:
> I suspect that is becuase he really hasn't a leg to stand
> on technically and he knows it.

I asked you to discuss the technical issues associated
with:

http://www.qsl.net/w5dxp/1WLDIP.GIF

- so I'm not the one avoiding discussion of the technical
issues.

Would it help if I paid you a fee to discuss those technical
issues?
--
73, Cecil http://www.qsl.net/w5dxp

3632. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:52:38 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HLKdnRPsgq9vi7XZnZ2dnUVZ_vWdnZ2d@adelphia.com>
Source record: 62293

Cecil Moore wrote:
> Everything about RMS standing wave current
> can be understood simply by
> superposing the RMS values of forward and reflected current.

Boing!

You might want to think about that sentence for a while.

3633. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:52:45 UTC
From: w8ji@akorn.net
Message-ID: <1143478365.286297.93720@i40g2000cwc.googlegroups.com>
Source record: 62294

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > I suspect that is becuase he really hasn't a leg to stand
> > on technically and he knows it.
>
> I asked you to discuss the technical issues associated
> with:
>
> http://www.qsl.net/w5dxp/1WLDIP.GIF
>
> - so I'm not the one avoiding discussion of the technical
> issues.
>
> Would it help if I paid you a fee to discuss those technical
> issues?
> --
> 73, Cecil http://www.qsl.net/w5dxp

Sure, since you already paid this:

Cecil Moore wrote:
> John Popelish wrote:
> > "Did you hear what he said about your wife?"
>
> Whatever he said is probably true. My ex-wife made
> off with $3 mil of my hard-earned dollars in 1984.
> I've never trusted a female since.
> --
> 73, Cecil http://www.qsl.net/w5dxp

how much will you pay me for putting up with you?

73 Tom

3634. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 16:53:25 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e095a5$6tq$2@engnntp2.cig.mot.com>
Source record: 62300

Most precisely it is a form of half waves in phase. Putting half wave radiators in a line like that (also called co-linear because they are on a common "co" line "linear") gives gain by compressing the radiation into the volume (a disk or flying saucer- like shape) perpendicular to the "line" of the elements.

It is a common type used in cellular base stations. Each section is approximately a half wave long. It is approximate because of the velocity factor of the coax and other factors. Reversing the center and shield for each section is the way the sections are all brought into the same phase.

I believe the ideal spacing (for gain) of half waves in phase is 1/2 wavelength. However the "reversed coax" construction is easier. It does not need some type coaxial phasing lines to feed all the separated elements and do it in phase.

The use of the term "sector" (by the author of the web site referenced) for each of the coax sections may be a misuse of the term "sector" which comes from the antennas common use in the cellular field with an added corner reflector that makes it have a 120 or 60 degree-wide pattern and thus used to cover only one Sector of a sectorized cellular site. Wi-Fi base stations can also have 3 or 6 sectors and use this type of sector antennas (with the reflector).

Hope this helps understand.

73, Steve, K9DCI

"KG0WX" <kg0wx@yahoo.com> wrote in message
news:1143244911.442365.111790@z34g2000cwc.googlegroups.com...
>
> http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
>
> The author calls it a sector antenna but I'm sure I've seen it in ham
> applications but with another name.
>
> Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?
>
> Thanks for the help!
>
> Ken KG0WX
>

3635. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:00:04 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ebqdnf-3icCwh7XZRVnyhA@bt.com>
Source record: 62295

> Please note that nobody has made valid measurements of the delay
> through a loading coil. The closest thing to a valid measurement
> presented thus far is the EZNEC simulation on my web page:
>
==========
Dear Antagonists,

Why go to the great hazardous trouble of measuring it when it can
easily be calculated from physical dimensions of the coil.

Velocity V = 1 / Sqrt(L * C) metres per second

where L and C are henrys and farads per metre.

Therefore Seconds Delay = Coil Length in metres / Velocity.

OK, I admit it's an approximation because coil turns couple one part
of the 'line' to another a short distance away. It is not unconnected
with proximity effect. This does not occur in a normal transmission
line. But the approximation holds.

See and amuse yourselves with program TRANCOIL.

.....
Regards from Reg, G4FGQ
For Free Radio Design Software go to
http://www.btinternet.com/~g4fgq.regp
.....

3636. Re: A Small Indoor FM Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:02:13 UTC
From: "W. Watson" <wolf_tracks@invalid.com>
Message-ID: <pUUVf.5544$HW2.2064@newsread3.news.pas.earthlink.net>
Source record: 62296

Sal M. Onella wrote:

> "Dave Oldridge" <doldridg@leavethisoutshaw.ca> wrote in message
> news:Xns9791BDA64496Edoldridgsprintca@64.59.135.159...
>
>>"W. Watson" <wolf_tracks@invalid.com> wrote in
>>news:LJlVf.5158$HW2.3572@newsread3.news.pas.earthlink.net:
>>
>>
>>>I have a product called RadioShark that is like Tivo for radio. I'm in
>>>an area where FM is a bit hard to get. I would like to receive at
>>>least one station at 88.7 clearly. There are several in the 88 to 89
>>>range that would do as well. It would be good to have an antenna that
>>>does it. I definitely recall a simple dipole that looks like a T that
>>>is made from some TV lead wire. That's been hooked to an FM rcvr not
>>>far from me, but has never worked to well. Possibly because I have to
>>>mount it on a nearby wall and under a shelf. It seems to me that years
>>>ago that a rabbit ears TV antenna included FM. Certainly the length of
>>>the ears were about right. They seem harder to come by. Something like
>>>a desktop model would be good, since RS is hooked into my computer in
>>>the den. Any suggestions?
>>>
>>> Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
>>> (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
>>> Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
>>
>>Take 66 inches of twinlead. Bare the ends back about 1.5 inches on each
>>end and short them. Cut into one side only in the center and bare the
>>cut wire. Connect it to the 300 ohm input of your tuner with more 300
>>ohm line, or insert a balun and connect with RG6 coax.
>>
>>Placement may be as important as antenna design.
>
>
>
> ... and if your home is like mine (also CA), it's stucco, which has an
> internal
> supporting wire frame that acts as a shield to RF. Putting the antenna
> outside
> may be required. Is your listenening room on the same side of the house as
> the
> transmitter? That would help.
>
> I live in a metropolitan area, so I get away with sloppy and careless.

> You
> may need to be neat and careful. <g>
>
> You can buy dedicated multi-element antennas just for the FM band.
> http://www.starkelectronic.com/fmpage.htm should get you started if
> you take that route.
>
>
Yes, I think I will have to drill a hole somewhere and mount the antenna (Yagi) outside the house. I made a 300 ohm lead antenna and mounted it on a 5' long board, so that I could move it around. It really didn't have any impact. I had hoped being close to a window would help, but nay. So that I don't have to mount the antenna on my roof, it seems possible to mount it some 50' from the house and transmit the signal to the house. I think I've seen some device like that for office use. They put it in a window, and distribute the signal inside the office to people who have FM (maybe AM too) radios. Maybe RShack or SuperCircuits sells them. Don't recall where I've seen them.

Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
(121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
Obz Site: 39ï¿½ 15' 7" N, 121ï¿½ 2' 32" W, 2700 feet
--
"No, Groucho is not my real name. I am only
breaking it in for a friend." -- Groucho Marx

Web Page: <home.earthlink.net/~mtnviews>

3637. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:12:35 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e096e3$7pu$2@engnntp2.cig.mot.com>
Source record: 62304

Minor addition below ************
"Steve Nosko" <suteuve.nosukowicuz@moutouroula.com> wrote in message
news:e095a5$6tq$2@engnntp2.cig.mot.com...
> Most precisely it is a form of half waves in phase. Putting half wave
> radiators in a line like that (also called co-linear because they are on
a
> common "co" line "linear") gives gain by compressing the radiation into
the
> volume (a disk or flying saucer- like shape) perpendicular to the "line"
> of the elements.
>
>
>
> It is a common type used in cellular base stations. Each section is
> approximately a half wave long. It is approximate because of the velocity
> factor of the coax and other factors. Reversing the center and shield for
> each section is the way the sections are all brought into the same phase.
>
>
>
> I believe the ideal spacing (for gain) of half waves in phase is 1/2
> wavelength. However the "reversed coax" construction is easier. It does
> not need some type coaxial phasing lines to feed all the separated
elements
> and do it in phase.
>
>
>
> The use of the term "sector" (by the author of the web site referenced)
for
> each of the coax sections may be a misuse of the term "sector" which comes
> from the antennas common use in the cellular field with an added corner
> reflector that makes it have a 120 or 60 degree-wide pattern and thus used
> to cover only one Sector of a sectorized cellular site. Wi-Fi base
stations
> can also have 3 or 6 sectors and use this type of sector antennas (with
the
> reflector).

****
He also says it has "two sectors" when it actually is three half waves in
phase. His "whip" is one half wave.

I also forgot that due to the coax loss factor, the gain is not the ideal,
for close half waves in phase, either. It IS very easy to make, however.

I also wonder if he has the dimensions incorrect with the, as he calls it, "whip" shorter than the coax sections. I haven't designed these, but it seems the "whip" should be a free space half wave long and the coax sections a "coax" half wave long.

Another consideration is the fact that these are not full half wave *radiators*, but shortened approx to 66%, or 0.33 lambda (when using this coax). I don't know how much effect the shorter element (vs. having full half wave elements at this tip-to-tip spacing) affects the gain compared to precisely getting 180 degrees of phase shift (or getting non-180degrees to get closer to half wave radiators) , not to mention the feed impedance. I believe commercial antennas like this use air line to get closer to true half wave radiating elements.

Hope this helps understand.

73, Steve, K9DCI

>
>
>
> Hope this helps understand.
>
>
>
> 73, Steve, K9DCI
>
>
>
>
> "KG0WX" <kg0wx@yahoo.com> wrote in message
> news:1143244911.442365.111790@z34g2000cwc.googlegroups.com...
> >
> > > http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html
> >
> > > The author calls it a sector antenna but I'm sure I've seen it in ham
> > > applications but with another name.
> >
> > > Also, can anyone quote me a dbi gain figure (@2.4ghz) for this?
> >
> > > Thanks for the help!
> >
> > > Ken KG0WX
> >
>
>

3638. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:15:48 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <85VVf.48674$2O6.18348@newssvr12.news.prodigy.com>
Source record: 62297

John Popelish wrote:
> Cecil Moore wrote:
>> Everything about RMS standing wave current
>> can be understood simply by
>> superposing the RMS values of forward and reflected current.
>
> Boing!
>
> You might want to think about that sentence for a while.

Let me rephrase. Everything about RMS standing wave
current can be understood simply by superposing the
values of the forward and reflected current phasors
whose phasor length is (usually) represented by their
RMS values.

The phasor arrow length is customarily the RMS value
of the phasor so the superposition of phasors turns out
to result in an RMS value. That's what I meant.

When EZNEC says the source current is 1.0 amp at zero
degrees, that is an RMS value. If the source voltage
is 50 volts at zero degrees, multiplying voltage by
current will yield the power input, i.e. 50 watts.
--
73, Cecil http://www.qsl.net/w5dxp

3639. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:17:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <k6VVf.48675$2O6.30601@newssvr12.news.prodigy.com>
Source record: 62298

w8ji@akorn.net wrote:
> how much will you pay me for putting up with you?

How much do you need to be paid to discuss technical
issues on a technical newsgroup?
--
73, Cecil http://www.qsl.net/w5dxp

3640. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:19:44 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <Q8VVf.48678$2O6.7136@newssvr12.news.prodigy.com>
Source record: 62299

Reg Edwards wrote:
> Therefore Seconds Delay = Coil Length in metres / Velocity.

So what is it for a 25 turn coil, 12 inches long,
6 inches in diameter, made from #16 wire? EZNEC
says it depends upon the frequency.
--
73, Cecil http://www.qsl.net/w5dxp

3641. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:21:25 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <pi7g22penmo7ge51afi5uc0cd34pe84ck8@4ax.com>
Source record: 62301

On Mon, 27 Mar 2006 17:17:04 GMT, Cecil Moore <mycall@hotmail.com>
wrote:
>How much do you need to be paid
This was already asked and answered. Must be the gringo form of
bartering a deal.

No wonder the immigration problem has never gone away with the
Republicans in charge. "How much would you pay for a tall fence 3000
miles long?" If its built by the Army Corps of Engineers to Katrina
standards?

3642. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:31:22 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e097ha$8gc$2@engnntp2.cig.mot.com>
Source record: 62307

Wayne,

I don't know if the others answered your question, but be careful. Your original post says:
"...two antennas separated by a distance D would have a resolution as the same as an antenna of size D,..."

Resolution is key here, not, as you state later,: "..can act as though they are a single receiver of size D"

"Resolution" vs. "act" may be ambiguous.

I'll take a stab.

Think of water waves. Picture some very nice, regular waves. All the same size, shape and wavelength. This is a good analogy for RF.
Now, put two *vertical* antennas in the pool (come-on in the water's fine). From the top they just look like dots right?

First, position them so they are in the same line with the wave front -- so each wave hits both at precisely the same time. (a broad-side array)

When like this, each antenna is receiving the same *PHASE* signal. The voltage goes up and it goes down at the same time in both antennas.

Now, slightly rotate this array so one of the antennas gets its waves a bit earlier. It will receive an *advanced * phase. The further apart these two antennas are, the more sensitive it will be to a small angle of rotation. Making your "D" bigger will make the antenna array "see" more phase shift for the same small angle (hat it is turned, right?

Also, if the signal comes from a slightly different direction, the same thing happens and therefore it can *RESOLVE* direction better with a larger "D".

Help any?

73, Steve, K9DCI

"W. Watson" <wolf_tracks@invalid.com> wrote in message news:xjfVf.5047$HW2.114@newsread3.news.pas.earthlink.net...
> Richard Clark wrote:
>
> > On Sat, 25 Mar 2006 01:53:24 GMT, "W. Watson"
> > <wolf_tracks@invalid.com> wrote:
> >
> >
> >
> >>Ultimately, I'm trying to comprehend, via a proof, that two receivers

> >>separated by a distance D can act as though they are a single receiver
of
> >>size D. Perhaps it can be done by simply considering the Young double
slit
> >>experiment. It bothers me that the idea is passed along without ever
proving
> >>it. Maybe the proof is trivial.
> >
> >
> > Hi Wayne,
> >
> > The two receivers/antennas is called "synthetic aperture." You can
> > observe the same thing with one antenna that is moving, we commonly
> > call it "picket fencing." This effect is due to reflections and
> > direct signals interfering constructively and destructively as you
> > move through the interference field. The math for that alone is found
> > in "Fresnel loss."
> >
> > The Young double slit IS the proof in that it contains all the math
> > you need. It contains two transcendental operations (sin or cos) as
> > many thetas as there are phases and distances, some magnitude
> > information, and the result pops out at you.
> >
> > In fact, the math is all the same for all of these effects.
> >
> > 73's
> > Richard Clark, KB7QHC
> My *old* physics book doesn't give the proof, but Hecht's Optics does.
> Whoops. It's in Waves by Crawford. No mention though that is the proof of
> this particular fact. Hecht mentions the experiment, and it may be proven
in
> subsequent sections using Fourier methods. Waves does it the old fashioned
> way. Accepting your comment then, I can read through it with a little more
> attention. Thanks.
>
>
> Wayne T. Watson (Watson Adventures, Prop., Nevada City, CA)
> (121.015 Deg. W, 39.262 Deg. N) GMT-8 hr std. time)
> Obz Site: 39° 15' 7" N, 121° 2' 32" W, 2700 feet
> --
> "No, Groucho is not my real name. I am only
> breaking it in fora friend." -- Groucho Marx
>
> Web Page: <home.earthlink.net/~mtnviews>

3643. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:32:55 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <yrydnY-t7vL5vbXZRVn-ug@adelphia.com>
Source record: 62302

Cecil Moore wrote:
> John Popelish wrote:
>
>> Cecil Moore wrote:
>>
>>> Everything about RMS standing wave current can be understood simply by
>>> superposing the RMS values of forward and reflected current.
>>
>>
>> Boing!
>>
>> You might want to think about that sentence for a while.
>
>
> Let me rephrase. Everything about RMS standing wave
> current can be understood simply by superposing the
> values of the forward and reflected current phasors
> whose phasor length is (usually) represented by their
> RMS values.

Better.

As I said, earlier, This thread has drawn me back to re-reading "Zen
and the Art of Motorcycle Maintenance". If you haven't read it, I
highly recommend it.

Here is a passage that jumped out at me, last night.

"The real purpose of scientific method is to make sure
Nature hasn't misled you into thinking you know something
you don't actually know. There's not a mechanic or scientist
or technician alive who hasn't suffered from that one
so much that he's not instinctively on guard.
That's the main reason why so much scientific and mechanical
information sounds so dull and so cautious.
If you get careless or go romanticizing scientific information,
giving it a flourish here and there, Nature will soon
make a complete fool out of you. It does it often enough anyway
even when you don't give it opportunities.
One must be extremely careful and rigidly logical
when dealing with Nature: one logical slip and an entire
scientific edifice comes tumbling down. One false deduction
about the machine and you can get hung up indefinitely."

More at:
http://www.public.iastate.edu/~stugard/Homepage/Zen%20and%20the%20Art%20of%20Motorcycle%20

Maintenance.pdf

3644. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:37:56 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <UpVVf.48683$2O6.46718@newssvr12.news.prodigy.com>
Source record: 62303

John Popelish wrote:
> "The real purpose of scientific method is to make sure
> Nature hasn't misled you into thinking you know something
> you don't actually know."

Hmmmm, anyone we know?
--
73, Cecil http://www.qsl.net/w5dxp

3645. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:49:49 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <U7ednbszNNrHubXZnZ2dnUVZ_tCdnZ2d@adelphia.com>
Source record: 62305

Cecil Moore wrote:
> John Popelish wrote:
>
>> "The real purpose of scientific method is to make sure
>> Nature hasn't misled you into thinking you know something
>> you don't actually know."
>
>
> Hmmmm, anyone we know?

Potentially everyone you know.

Oh wait...

We really don't know anyone.
We only pretend we do.

3646. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 17:58:16 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <Xeudnfwa_N5PurXZRVnyuA@bt.com>
Source record: 62306

> So what is it for a 25 turn coil, 12 inches long,
> 6 inches in diameter, made from #16 wire? EZNEC
> says it depends upon the frequency.
> --
> 73, Cecil
==========

Use both programs and compare the results.

Make the coil 1 metre long, 500 turns, and diameter 25.4 mm (1 inch).
Give the programs something to get their teeth into.

How does EZNEC make its calculations? If you don't know you are
placing your faith in a mirage.

Reg.

3647. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 18:37:35 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <q9bg22lb1ermrd449plljl7923ml30vf52@4ax.com>
Source record: 62309

On Mon, 27 Mar 2006 18:58:16 +0100, "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

> If you don't know you are placing your faith in a mirage.

Now there's a commendation for your own work. No wonder we don't see
any correspondence from you with actual values for the coils offered.

Lords Plushbottom and Kelvinator might let you serve in the black
gang, moving coal on one of those transatlantic cable layers - but
they certainly wouldn't expect a practical answer to:

"How many shovels full today Reggie?"

"If your lordships will forgive me, but you can find out by
downloading my unzipped SHUVFULL.EXE and entering many fascinating
variables."

"I say, Plushbottom old son, we must ask the Boatswain to check
the coal bunkers for hidden bottles of Sack."

Who would've guessed that the comedic possibilities still lingered
after 600 postings. ;-)

3648. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 18:38:40 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122gc9kjhkse19@corp.supernews.com>
Source record: 62308

Reg Edwards wrote:
>> Please note that nobody has made valid measurements of the delay
>> through a loading coil. The closest thing to a valid measurement
>> presented thus far is the EZNEC simulation on my web page:
>>
> ==
> Dear Antagonists,
>
> Why go to the great hazardous trouble of measuring it when it can
> easily be calculated from physical dimensions of the coil.
>
> Velocity V = 1 / Sqrt(L * C) metres per second
>
> where L and C are henrys and farads per metre.
>
> Therefore Seconds Delay = Coil Length in metres / Velocity.
>
> OK, I admit it's an approximation because coil turns couple one part
> of the 'line' to another a short distance away. It is not unconnected
> with proximity effect. This does not occur in a normal transmission
> line. But the approximation holds.
>
> See and amuse yourselves with program TRANCOIL.

It's hard to tell from this, but are you still claiming that the
end-to-end C of an inductor is the C of an equivalent transmission line?
Or even an approximation? Does your program assume this?

Roy Lewallen, W7EL

3649. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 18:47:03 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122gcpc3sr0i6e0@corp.supernews.com>
Source record: 62310

Reg Edwards wrote:
> . . .

> How does EZNEC make its calculations? If you don't know you are
> placing your faith in a mirage.

A bit more than a mirage -- you're placing your faith in a program (NEC-2) which has been in daily use by hundreds to thousands for nearly 30 years, and has been used for designing countless antennas, several of which you almost certainly use daily.

But anyone interested in knowing how EZNEC does its calculations can get a highly detailed answer from the NEC-2 manual, available free at http://www.si-list.org/NEC_Archives/nec2prt1.pdf. Or, if interested in the general method (method of moments), there's a very good and easy to understand explanation in the second and later editions of Kraus' _Antennas_. I'm sure there are some good (and undoubtedly also bad) explanations of the moment method on the web, also.

Roy Lewallen, W7EL

3650. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 18:54:45 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <VxWVf.34171$bn3.14510@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62311

Cecil,

I don't remember why you chose a frequency of 5.89 MHz for all of your analysis, but in any case I believe that frequency is slightly out of the 75 meter band. The FCC will be calling. 8-)

I tried to adjust the frequency downward, but the segment length limit is reached for the coil model. I redrew the coil with only six segments per turn, rather than eight. Now the frequency can be lowered to about 3.94 MHz without EZNEC guideline check warnings.

In order to get the 90 degree phase curve I extended the horizontal wire to about 55 feet. (not sure why this matters if the antenna is purely a terminated traveling wave antenna, but, hey, no loose ends.)

The result from EZNEC is that the phase shift in the coil is about 9 degrees.

You might observe that this shift is a bit smaller than the "tens of degrees" noted below, and it is also smaller than the guru-inspired transition point of 15 degrees.

I would like to model a coil more typical of common use than the strange beast you designed, but the segment length limits in the NEC engine seem to preclude such models. (I have never seen a mobile coil that is 12 inches high, 6 inches in diameter, with 2 turns per inch.)

If I was the cynical sort I might think that your choice of coil dimensions and frequency were picked to get a phase shift of 16 degrees, which is just over the guru limit. But since I am a straightforward kind of guy I won't think such thoughts.

73,
Gene
W4SZ

Cecil Moore wrote:

> Technical facts *are* a deeply personal issue with me. So I ask
> you the same question here: When are you going to correct the
> technical errors on your web page? The delay through a 75m
> mobile bugcatcher coil is tens of degrees, not faster than the
> speed of light.

3651. Re: Capture Area Vs Aperture

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 18:57:10 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122gdcb8qt1u71@corp.supernews.com>
Source record: 62312

Aperture is the same as capture area. Both are the same thing as gain (although numerically different), just looking in the problem in the reverse direction. Once you know the gain, you know the aperture and capture area or vice-versa.

Roy Lewallen, W7EL

Caveat Lector wrote:
> Ok I screwed up by referring to the Sommer antenna site for Capture Area
>
> But I was taught that antenna gain is a function of Aperture - part of the
> classic radar range equation
> https://ewhdbks.mugu.navy.mil/2waymon.htm
>
> For Aperture discussion see URL:
> https://ewhdbks.mugu.navy.mil/ANTENNAS.HTM
>
> So would be interested in your comments on Antenna aperture and antenna gain
> and capture area
>

3652. Coax Connectors & Adapters, new catalog now available

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:03:08 UTC
From: AAA RF Products <sales@aaarfproducts.com>
Message-ID: <UDWVf.382$CL6.69@fed1read11>
Source record: 62313
Cross-posted to: rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

For your free copy of our new catalog,

please email sales@AAARFProducts.com

or see www.aaarfproducts.com

or call 949 481 3154 (San Clemente, CA, USA)

No minimum order.

No handling charges.

3653. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:09:40 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122ge3nsvfevg9d@corp.supernews.com>
Source record: 62314

Gene Fuller wrote:
> . . .
> I tried to adjust the frequency downward, but the segment length limit
> is reached for the coil model. I redrew the coil with only six segments
> per turn, rather than eight. Now the frequency can be lowered to about
> 3.94 MHz without EZNEC guideline check warnings.
> . . .

Of the Guideline Check warnings, the one about short segment length can most often be ignored without a problem. If in doubt and where practical, do a test case. For example, model the inductor with a wire through the middle directly connecting top and bottom and with a source in the middle. Note how the source reactance changes with frequency to see that it follows what it should theoretically do. Another test you should run when in doubt is the Average Gain test, described in the manual. Either is probably adequate to have confidence in the results.

The Guideline Check warnings are based on NEC-2 recommendations. I've found that you can often make segments much shorter than the recommendations without causing a problem.

Roy Lewallen, W7EL

3654. Re: Coax Connectors & Adapters, new catalog now available

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:14:37 UTC
From: John - KD5YI <groups5munge@verizon.net>
Message-ID: <xQWVf.2640$qm2.2422@trnddc03>
Source record: 62315
Cross-posted to: rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

AAA RF Products wrote:
> For your free copy of our new catalog,
>
> please email sales@AAARFProducts.com
>
> or see www.aaarfproducts.com
>
> or call 949 481 3154 (San Clemente, CA, USA)
>
> No minimum order.
>
> No handling charges.
>
>

Your prices suck.

3655. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:23:55 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <fZWVf.9641$tN3.1229@newssvr27.news.prodigy.net>
Source record: 62316

Reg Edwards wrote:
> How does EZNEC make its calculations? If you don't know you are
> placing your faith in a mirage.

It uses the Moment Method (MM) sometimes called the Method
Of Moments (MOM). It's described in Kraus and Balanis
and credited to Roger Harrington in the 1960's.

Each segment in EZNEC is assumed to have constant current.
In the aforementioned 8-sided coil, there are 200 segments,
each with an assumed constant current. The standing wave
current in each segment depends upon where it is inserted
in the standing wave environment as shown at:

http://www.qsl.net/w5dxp/1WLDIP.EZ
--
73, Cecil http://www.qsl.net/w5dxp

3656. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:48:26 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <ekXVf.9645$tN3.5988@newssvr27.news.prodigy.net>
Source record: 62317

Gene Fuller wrote:

Gene, I want to commend you on a rational, mostly technical,
posting. Hopefully, others will follow your lead.

> I don't remember why you chose a frequency of 5.89 MHz for all of your
> analysis, but in any case I believe that frequency is slightly out of
> the 75 meter band. The FCC will be calling. 8-)

:-) Here's the history. I tried to model my 75m bugcatcher coil in
EZNEC. It appears to be impossible without violating EZNEC's guidelines.
So I changed the coil from 4 TPI to 2 TPI. That moved the resonant
frequency from 3.8 MHz to 5.9 MHz, close enough to the 60m band
that I thought no one would object. Do you think the FCC calls everyone
who uses EZNEC to model an antenna out of the amateur bands? :-)

> I tried to adjust the frequency downward, but the segment length limit
> is reached for the coil model. I redrew the coil with only six segments
> per turn, rather than eight. Now the frequency can be lowered to about
> 3.94 MHz without EZNEC guideline check warnings.

Hey, great.

> In order to get the 90 degree phase curve I extended the horizontal wire
> to about 55 feet. (not sure why this matters if the antenna is purely a
> terminated traveling wave antenna, but, hey, no loose ends.)

I found the same thing. Seems no matter how one changes things, it
appears to be a diverging series. The main goal is to get the reflections
reduced to a low level, maybe not to eliminate them entirely.

> The result from EZNEC is that the phase shift in the coil is about 9
> degrees.

Yes, but that's for a coil designed for a 6 MHz antenna. You need to
add a lot of turns to make it typical of a 4 MHz coil. Doubling the
turns would make for an 18 degree phase shift - a detail you seem to
have missed. Please expand the coil until it resonates an 8 foot
antenna on 4 MHz and repeat your findings.

> You might observe that this shift is a bit smaller than the "tens of
> degrees" noted below, and it is also smaller than the guru-inspired
> transition point of 15 degrees.

Of course, a 60m mobile coil used on 75m is going to have a smaller
phase shift. But you dropped a bit in your logic, Gene. What you need
to do is go back and create a coil that resonates an 8 foot antenna
on 4 MHz. Then do your phase calculations. When you do that, the delay

in the larger coil will turn out to be tens of degrees. Could you email
me your EZNEC file? (Hopefully, without the worm/virus I received from
someone else recently.)

> I would like to model a coil more typical of common use than the strange
> beast you designed, but the segment length limits in the NEC engine seem
> to preclude such models. (I have never seen a mobile coil that is 12
> inches high, 6 inches in diameter, with 2 turns per inch.)

We do the best we can do with the tools we have. Actually, I
have seen such a coil at one of the CA 75m shootouts. It was
made out of half-inch copper tubing.

> If I was the cynical sort I might think that your choice of coil
> dimensions and frequency were picked to get a phase shift of 16 degrees,
> which is just over the guru limit. But since I am a straightforward kind
> of guy I won't think such thoughts.

I tried to model my 4 TPI 75m bugcatcher coil. EZNEC would have
none of that. So I modeled what I could. The phase shift of
16 degrees was a complete coincidence, but interesting, no?
--
73, Cecil http://www.qsl.net/w5dxp

3657. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 19:51:36 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <cnXVf.9646$tN3.7335@newssvr27.news.prodigy.net>
Source record: 62318

Roy Lewallen wrote:
> Of the Guideline Check warnings, the one about short segment length can
> most often be ignored without a problem.

The problem that Gene and I are having is the spacing between
adjacent segments. EZNEC won't allow me to do a 4 TPI coil.
--
73, Cecil http://www.qsl.net/w5dxp

3658. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 20:20:00 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <PNXVf.34375$bn3.6297@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62319

Hi Roy,

Thanks. I went back and bravely ran the original coil model, ignoring the guideline checks. The difference in results from the two coil models, eight-sided and six-sided, was in the noise. (Or at least well below the new RRAA error guideline of 59%.)

Emboldened by this apparent success I tried to substitute the now-famous W8JI coil; 100 turns, 2 inch diameter, 10 inch length. This time the overall 500 segment count was the limiter (I am cheap), so I had to make the coil four-sided. The delay through this coil was about 9 degrees at 5.89 MHz and about 6 degrees at 3.9 MHz.

Sooooo, the bottom line for the 17,000 posts in this thread is that the pure lumped-circuit toroidal coil analog might be just a slight bit stingy, but it comes pretty close to reality. The full-bore transmission line model for the coil works as well, but it does not appear to add much useful information. The real phase shifts are well below the 15 degree transition point claimed by the Tesla coil crowd. I am sure none of this is news for you or for most others.

Cecil has thanked me on several occasions for bringing up the standing wave equations. I now must return the favor by thanking him for setting up the traveling wave model. It did not prove his point, but it helped bring clarity to the issue.

I am confident that this will not be the end of this immortal thread, but it is now quite clear through simulation that the entire issue is much ado about very little.

73,
Gene
W4SZ

Roy Lewallen wrote:
> Gene Fuller wrote:
>
>> . . .
>> I tried to adjust the frequency downward, but the segment length limit
>> is reached for the coil model. I redrew the coil with only six
>> segments per turn, rather than eight. Now the frequency can be lowered
>> to about 3.94 MHz without EZNEC guideline check warnings.
>> . . .
>
>
> Of the Guideline Check warnings, the one about short segment length can

> most often be ignored without a problem. If in doubt and where
> practical, do a test case. For example, model the inductor with a wire
> through the middle directly connecting top and bottom and with a source
> in the middle. Note how the source reactance changes with frequency to
> see that it follows what it should theoretically do. Another test you
> should run when in doubt is the Average Gain test, described in the
> manual. Either is probably adequate to have confidence in the results.
>
> The Guideline Check warnings are based on NEC-2 recommendations. I've
> found that you can often make segments much shorter than the
> recommendations without causing a problem.
>
> Roy Lewallen, W7EL

3659. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 20:24:12 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <MRXVf.6334$4L1.807@newssvr11.news.prodigy.com>
Source record: 62320

Cecil Moore wrote:
> Roy Lewallen wrote:
>
>> Of the Guideline Check warnings, the one about short segment length
>> can most often be ignored without a problem.
>
>
> The problem that Gene and I are having is the spacing between
> adjacent segments. EZNEC won't allow me to do a 4 TPI coil.

Gee, I wonder why that is?
73,
Tom Donaly, KA6RUH

3660. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 20:40:09 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <J4YVf.9653$tN3.5209@newssvr27.news.prodigy.net>
Source record: 62321

Gene Fuller wrote:
> Cecil has thanked me on several occasions for bringing up the standing
> wave equations. I now must return the favor by thanking him for setting
> up the traveling wave model. It did not prove his point, but it helped
> bring clarity to the issue.

Uhhh Gene, you still need to add turns to the 6 MHz coil to bring
it down to 4 MHz with an 8 foot antenna. No fair reporting the
half of the results that agree with your preconceptions while
ignoring the half of the results that disagree.
--
73, Cecil http://www.qsl.net/w5dxp

3661. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 20:42:09 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <B6YVf.9654$tN3.5188@newssvr27.news.prodigy.net>
Source record: 62322

Tom Donaly wrote:

> Cecil Moore wrote:
>> The problem that Gene and I are having is the spacing between
>> adjacent segments. EZNEC won't allow me to do a 4 TPI coil.
>
> Gee, I wonder why that is?

My real-world 75m bugcatcher coil is 4 TPI. That EZNEC won't
model it is discouraging.
--
73, Cecil http://www.qsl.net/w5dxp

3662. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 21:19:55 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <%FYVf.9662$tN3.6907@newssvr27.news.prodigy.net>
Source record: 62323

Gene Fuller wrote:
> Emboldened by this apparent success I tried to substitute the now-famous
> W8JI coil; 100 turns, 2 inch diameter, 10 inch length. This time the
> overall 500 segment count was the limiter (I am cheap), so I had to make
> the coil four-sided. The delay through this coil was about 9 degrees at
> 5.89 MHz and about 6 degrees at 3.9 MHz.
> Sooooo, the bottom line for the 17,000 posts in this thread is ...

You wish that was the bottom line. Here's some mud in your eye.

1. I have always been talking about my 75m bugcatcher coil which
is about 6"x6" and designed for actual mobile use. W8JI's coil
is nowhere near what the average ham uses for a 75m bugcatcher
coil. It is much too fragile for long-term mobile use. It can't
even be considered to be a "bugcatcher" because one Texas-
sized bug and it is destroyed.

2. You haven't installed that coil in an 8 foot 75m mobile
antenna so you don't know what the delay is in an 8 foot
4 MHz system. Please feel free to try again - no cigar at
the present time.
--
73, Cecil http://www.qsl.net/w5dxp

3663. Re: Coax Connectors & Adapters, new catalog now available

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 21:47:33 UTC
From: Larry <noone@home.com>
Message-ID: <Xns9793AAE00F8C0noonehomecom@208.49.80.253>
Source record: 62324
Cross-posted to: rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

"AAA RF Products" <sales@aaarfproducts.com> wrote in news:UDWVf.382
$CL6.69@fed1read11:

> For your free copy of our new catalog,
>
> please email sales@AAARFProducts.com
>
> or see www.aaarfproducts.com
>
> or call 949 481 3154 (San Clemente, CA, USA)
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> No minimum order.
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> No handling charges.
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He won't, either, after Cox Cable gets done with him....abuse@cox.net
Include this header below...Adios!
Send a copy to abuse@giganews.com, too, just for kicks. He's easy to
find with his IP ass hangin' out like that (64.58.167.76 in every
header). I did...(c;

Path: be02!atl-c01.usenetserver.com!news.usenetserver.com!atl-
c05.usenetserver.com!news.usenetserver.com!postnews.google.com!
news3.google.com!border1.nntp.dca.giganews.com!
border2.nntp.dca.giganews.com!nntp.giganews.com!peer01.cox.net!cox.net!
p01!fed1read11.POSTED!53ab2750!not-for-mail
From: "AAA RF Products" <sales@aaarfproducts.com>
Newsgroups:
rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebre
w
Subject: Coax Connectors & Adapters, new catalog now available
Lines: 13
X-Priority: 3
X-MSMail-Priority: Normal
X-Newsreader: Microsoft Outlook Express 6.00.2900.2180

X-MimeOLE: Produced By Microsoft MimeOLE V6.00.2900.2180
X-RFC2646: Format=Flowed; Original
Message-ID: <UDWVf.382$CL6.69@fed1read11>
Date: Mon, 27 Mar 2006 11:03:08 -0800
NNTP-Posting-Host: 64.58.167.76
X-Complaints-To: abuse@cox.net
X-Trace: fed1read11 1143486068 64.58.167.76 (Mon, 27 Mar 2006 14:01:08
EST)
NNTP-Posting-Date: Mon, 27 Mar 2006 14:01:08 EST
Organization: Cox Communications
Xref: usenetserver.com rec.boats.electronics:159807
rec.radio.amateur.antenna:322471 rec.radio.amateur.homebrew:196504
X-Received-Date: Mon, 27 Mar 2006 14:01:11 EST (be02)

3664. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 21:50:13 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <p6ZVf.63605$dW3.41497@newssvr21.news.prodigy.com>
Source record: 62325

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Emboldened by this apparent success I tried to substitute the
>> now-famous W8JI coil; 100 turns, 2 inch diameter, 10 inch length. This
>> time the overall 500 segment count was the limiter (I am cheap), so I
>> had to make the coil four-sided. The delay through this coil was about
>> 9 degrees at 5.89 MHz and about 6 degrees at 3.9 MHz. Sooooo, the
>> bottom line for the 17,000 posts in this thread is ...
>
>
> You wish that was the bottom line. Here's some mud in your eye.
>
> 1. I have always been talking about my 75m bugcatcher coil which
> is about 6"x6" and designed for actual mobile use. W8JI's coil
> is nowhere near what the average ham uses for a 75m bugcatcher
> coil. It is much too fragile for long-term mobile use. It can't
> even be considered to be a "bugcatcher" because one Texas-
> sized bug and it is destroyed.
>
> 2. You haven't installed that coil in an 8 foot 75m mobile
> antenna so you don't know what the delay is in an 8 foot
> 4 MHz system. Please feel free to try again - no cigar at
> the present time.

You mean your coil has to be attached to an antenna in order
to become a transmission line? This is getting better and
better.
73,
Tom Donaly, KA6RUH

3665. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 22:01:40 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <8hZVf.63614$dW3.55344@newssvr21.news.prodigy.com>
Source record: 62126

Tom Donaly wrote:
> You mean your coil has to be attached to an antenna in order
> to become a transmission line? This is getting better and
> better.

My 75m bugcatcher coil has to be attached to a 75m mobile antenna installed on my GMC pickup. That's the boundary conditions and I have been explicit about that. This is getting stranger and stranger. Next you guys will have the coil floating in free space between Sol and Alpha Centauri unconnected from anything in order to remove it from any resemblance to a real-world environment.

In virtually all my postings, I have specified that I was talking about a 75m bugcatcher coil installed in a mobile installation. It really doesn't matter what happens outside that specified environment.

The gurus are slowly divorcing themselves from reality. The only way they can be right is to take the mobile antenna off the vehicle, throw away the antenna, and keep the coil for testing on a bench. Have you no shame? How far are you willing to retreat from reality to make a feeble attempt to be right?
--
73, Cecil http://www.qsl.net/w5dxp

3666. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 22:26:08 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <4EZVf.34671$bn3.12223@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62127

Cecil,

I thought we already agreed that there is no phase shift in the real environment, namely, a nearly pure standing wave environment. You were the one who brought up all the special cases in an attempt to prove your point.

However, your latest message is refreshing. I was afraid for a while that you were attempting to use a 48 foot tall mobile antenna or drag a 31.5 foot wire terminated in a resistor down the road.

73,
Gene
W4SZ

Cecil Moore wrote:
> Tom Donaly wrote:
>
>> You mean your coil has to be attached to an antenna in order
>> to become a transmission line? This is getting better and
>> better.
>
>
> My 75m bugcatcher coil has to be attached to a 75m mobile
> antenna installed on my GMC pickup. That's the boundary
> conditions and I have been explicit about that. This is
> getting stranger and stranger. Next you guys will have
> the coil floating in free space between Sol and Alpha
> Centauri unconnected from anything in order to remove it
> from any resemblance to a real-world environment.
>
> In virtually all my postings, I have specified that I
> was talking about a 75m bugcatcher coil installed in
> a mobile installation. It really doesn't matter what
> happens outside that specified environment.
>
> The gurus are slowly divorcing themselves from reality.
> The only way they can be right is to take the mobile
> antenna off the vehicle, throw away the antenna, and
> keep the coil for testing on a bench. Have you no
> shame? How far are you willing to retreat from reality
> to make a feeble attempt to be right?

3667. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 22:42:49 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <JTZVf.63622$dW3.39127@newssvr21.news.prodigy.com>
Source record: 62128

Gene Fuller wrote:
> I thought we already agreed that there is no phase shift in the real
> environment, namely, a nearly pure standing wave environment.

You are not arguing in good faith.

We agreed that standing wave current with its unchanging phase
cannot be used to measure the phase shift through a coil. The
fact that there is no phase shift from end to end in a 1/2WL
thin-wire dipole proves that using the standing wave phase
to measure a phase shift is meaningless. You said the same
thing in the following statement. Do you want to retract what
you said?

Regarding the cos(kz)*cos(wt) term in a standing wave:

Gene Fuller, W4SZ wrote:
> In a standing wave antenna problem, such as the one you describe,
> there is no remaining phase information. Any specific phase
> characteristics of the traveling waves died out when the startup
> transients died out.
>
> Phase is gone. Kaput. Vanished. Cannot be recovered. Never to be
> seen again.

> You were
> the one who brought up all the special cases in an attempt to prove your
> point.

No, I'm using your posting to prove that standing wave current phase
is meaningless. There's no special case. Standing wave current phase
is *always* meaningless.

Please install your coils in an 8 foot 75m antenna and get back to
us on the results.
--
73, Cecil http://www.qsl.net/w5dxp

3668. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 22:46:45 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <XcWdnen5Tp_k9rXZRVnyrA@bt.com>
Source record: 62129

I know how EZNEC calculates propagation from straight wires. It does
it very well.

But do you know how it calculates the inductance of coils?

How long has it been able to do this?

Reg
==========

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:fZWVf.9641$tN3.1229@newssvr27.news.prodigy.net...
> Reg Edwards wrote:
> > How does EZNEC make its calculations? If you don't know you are
> > placing your faith in a mirage.
>
> It uses the Moment Method (MM) sometimes called the Method
> Of Moments (MOM). It's described in Kraus and Balanis
> and credited to Roger Harrington in the 1960's.
>
> Each segment in EZNEC is assumed to have constant current.
> In the aforementioned 8-sided coil, there are 200 segments,
> each with an assumed constant current. The standing wave
> current in each segment depends upon where it is inserted
> in the standing wave environment as shown at:
>
> http://www.qsl.net/w5dxp/1WLDIP.EZ
> --
> 73, Cecil http://www.qsl.net/w5dxp

3669. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:05:23 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <3d2dnc8T6vtJ8rXZRVnyjg@bt.com>
Source record: 62130

"Roy Lewallen" wrote
> It's hard to tell from this, but are you still claiming that the
> end-to-end C of an inductor is the C of an equivalent transmission
line?
> Or even an approximation? Does your program assume this?
>
> Roy Lewallen, W7EL

==========
Roy,

What do you mean by end-to-end C.

But very recently you did say "Reg is right" when I said "All coils
behave like transmission lines."

You and I agree on most fundamental matters.

Reg.

3670. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:10:02 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122gs6e9ipm3580@corp.supernews.com>
Source record: 62131

Reg Edwards wrote:
> I know how EZNEC calculates propagation from straight wires. It does
> it very well.

In your last posting, you asked "How does EZNEC make its calculations?" Wow, you're a quick learner.

> But do you know how it calculates the inductance of coils?

Yes. A model of a coil is constructed out of straight wires, making each turn polygonal. A wire containing a source is connected from one end to the other and, providing that the coil is short in terms of wavelength, the reactance seen by the source will be that of the coil at the test frequency.

> How long has it been able to do this?

An automated helix creation feature was introduced in v. 4.0 two years ago this May. It has always been capable of doing the calculation, but until v. 4.0 the user would have had to calculate the wire end coordinates with an external program and import them into EZNEC.

The free demo version has this feature. You can create any size helix with it to see how the feature works. You won't, however, be able to calculate its inductance with the demo program due to the segment limitation.

As I've pointed out before, EZNEC won't account for proximity effect, so reported loss will be optimistic if the turns are spaced very closely.

Roy Lewallen, W7EL

3671. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:16:57 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <k8ydnSSWSZUa77XZRVnyvg@bt.com>
Source record: 62132

I've a feeling there is some confusion here between phase delay in
degrees, and delay in time (nano-seconds).

The former changes with frequency. The latter does not.

You should all make yourselves perfectly clear.

Reg.

3672. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:17:35 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122gskjhtmc3iaa@corp.supernews.com>
Source record: 62133

Reg Edwards wrote:
> "Roy Lewallen" wrote
>> It's hard to tell from this, but are you still claiming that the
>> end-to-end C of an inductor is the C of an equivalent transmission
> line?
>> Or even an approximation? Does your program assume this?
>>
>> Roy Lewallen, W7EL
>
> ==========
> Roy,
>
> What do you mean by end-to-end C.

What most people would call "self capacitance" -- the equivalent
capacitance from one terminal to the other.
>
> But very recently you did say "Reg is right" when I said "All coils
> behave like transmission lines."

More specifically, you said:

> EVERYTHING has Inductance, Capacitance and Resistance, and therefore
> behaves as a transmission line.

I agreed with that. This doesn't mean that I agree that you can choose
any C you like from any point to any other, plug it into a transmission
line formula, and get a meaningful result. Transmission lines are two
port, four terminal devices, so a completely isolated inductor or other
component, by itself, can't behave as a transmission line, except by
assuming some C to the Earth.

> You and I agree on most fundamental matters.

I'll have to take your word for that. It isn't always apparent by what
you say in your postings.

Roy Lewallen, W7EL

3673. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:21:31 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <%r_Vf.63627$dW3.46964@newssvr21.news.prodigy.com>
Source record: 62134

Reg Edwards wrote:
> I know how EZNEC calculates propagation from straight wires. It does
> it very well.
>
> But do you know how it calculates the inductance of coils?

I don't think EZNEC cares about the inductance of helical coils. As I have been advocating, the EZNEC helical option treats the coil as just another part of the wire antenna that has been spiraled into a coil.

It is ironic, is it not, that EZNEC treats a helix as just coiled up wire? Especially after the gurus have asserted that a coiled up piece of wire is not a piece of wire at all but is instead transformed into something magical that violates the theory of relativity with faster than light propagation?

> How long has it been able to do this?

I don't know exactly. I was creating segmented coils long before EZNEC had the helix option. I even wrote a BASIC program to generate an ASCII file capable of being imported into EZNEC.
--
73, Cecil http://www.qsl.net/w5dxp

3674. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:25:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <Kv_Vf.63630$dW3.19826@newssvr21.news.prodigy.com>
Source record: 62135

Reg Edwards wrote:

> I've a feeling there is some confusion here between phase delay in
> degrees, and delay in time (nano-seconds).
>
> The former changes with frequency. The latter does not.
>
> You should all make yourselves perfectly clear.

EZNEC takes a time-frozen snapshot of the system and reports the
phases throughout the system referenced to the source.

So, given a 1/2WL thin-wire dipole, what is the difference between
the delay in nanoseconds and the phase delay in degrees. Aren't
they convertable to each other?
--
73, Cecil http://www.qsl.net/w5dxp

3675. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:47:01 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <2J6dnelEHoAJ5LXZnZ2dnUVZ8qednZ2d@bt.com>
Source record: 62136

> > You and I agree on most fundamental matters.
>
> I'll have to take your word for that. It isn't always apparent by
what
> you say in your postings.
>
> Roy Lewallen, W7EL

==========

Roy, you have a habit of creating arguments where none exist.

And communications via the Internet are handicapped by the absence of
body language. But we still have <smileys> ;o)

Reg.

3676. Re: Signal Strength Meter for Mobile Phones

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-27 23:57:27 UTC
From: Dan Andersson <dan@andersson.co.uk>
Message-ID: <iPacnXLKG5J45rXZSa8jmw@karoo.co.uk>
Source record: 62137

Mark wrote:

> I currently offer a service for Mobile Phone users in rural/remote
> areas, where I fit a Yagi antenna for people with poor reception
> problems. At the moment I use a Mobile Phone's signal strength reading
> (along with a map and compass) to locate the strongest signal from the
> nearest base station (the region where I work, there is only one
> service provider). Because these readings are a bit slow to respond, I
> would like to build/buy a simple signal strength meter to be a bit
> more accurate, when setting up these antenna's. I either need
> something with a meter or even simpler (and maybe better) headphones
> listening to the familiar signals sent out by these things, to find
> the strongest signal. Because I work in very remote areas normally, I
> am guessing that the base station signals, should not be that hard to
> distinguish from the normal mish mash of mobile phone signals. Would
> anybody be kind enough to supply me with a diagram or a web site etc,
> to help me on my way? PS 950Mhz.

Some mobile phones (Ericsson) can be keyed to present the "real" signal strength, not only the blobs on your LCD but a Signal Strength number.

Perform a Google search and see what you can find.

Cheers

Dan / M0DFI

3677. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 00:33:48 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <k6edneJyF6woGbXZRVnyjQ@bt.com>
Source record: 62139

The capacitance of a coil is to the second "wire", that is, to the "rest of the universe".

I forget the name of the current which flows through that capacitance. But undoubtably, it does flow.

Apart from end-effects (as with an antenna wire) it is uniformly distributed along a body (as with a transmission line) and is sufficiently accurately calculable.

The whole capacitance has an equivalent capacitance which can be connected between the ends of a coil to make a resonant circuit with the coil isolated in space. There is a resonant frequency.

But no use can be made of the resonant frequency because as soon anything is connected to either one or both ends of the coil the capcitance to the rest of the world changes and the resonant frequency shifts downwards. I could go on!

But Roy, you know all this and I mention it here for the benefit of novices.

Reg.

3678. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 00:34:29 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <pw%Vf.63651$dW3.12394@newssvr21.news.prodigy.com>
Source record: 62138

Gene Fuller wrote:
> I thought we already agreed that there is no phase shift in the real
> environment, namely, a nearly pure standing wave environment.

There's no phase shift in the standing wave current in 45
degrees of straight wire. Doesn't that tell you something?
You said yourself that the standing wave current phase
doesn't contain any phase information.

Here's what you guys need to do to convince me that you are
right.

1. Develop a coil acceptable to EZNEC that resonates an 8
foot whip on 4 MHz over mininec ground. Send me a copy of
the EZNEC file.

2. Put the same coil in the traveling wave environment as
I have done at: http://www.qsl.net/w5dxp/test316y.GIF
and report the phase shift through the coil. Send me a
copy of the EZNEC file.

If you are so right and I am so wrong, that shouldn't be
too difficult for half a dozen gurus (including the
developer of EZNEC).
--
73, Cecil http://www.qsl.net/w5dxp

3679. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 00:51:18 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <wNydnZUTcOQ9FbXZRVny2g@bt.com>
Source record: 62140

"Cecil Moore" <mycall@hotmail.com> wrote in message
news:Kv_Vf.63630$dW3.19826@newssvr21.news.prodigy.com...
> Reg Edwards wrote:
>
> > I've a feeling there is some confusion here between phase delay in
> > degrees, and delay in time (nano-seconds).
> >
> > The former changes with frequency. The latter does not.
> >
> > You should all make yourselves perfectly clear.
>
> EZNEC takes a time-frozen snapshot of the system and reports the
> phases throughout the system referenced to the source.
>
> So, given a 1/2WL thin-wire dipole, what is the difference between
> the delay in nanoseconds and the phase delay in degrees. Aren't
> they convertable to each other?
> --
==========

Of course they are, you block-head. But one is measured in degrees of
phase-shift and the other in nano-seconds of time. So to prevent
confusion you must say which one you are waffling about.

Reg

3680. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 01:21:44 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <tpGdnc0X5tdQErXZRVnysg@bt.com>
Source record: 62141

Cec,

Having clarified what *I* am waffling about, are *you* still saying
that EZNEC reports propagation delay as being dependent on frequency.

Is it phase delay or time delay along the coil which is dependent on
frequency?

Reg.

3681. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 01:39:23 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <122h4ums03g6ba7@corp.supernews.com>
Source record: 62142

Reg Edwards wrote:
> Cec,
>
> Having clarified what *I* am waffling about, are *you* still saying
> that EZNEC reports propagation delay as being dependent on frequency.
>
> Is it phase delay or time delay along the coil which is dependent on
> frequency?
> ----
> Reg.
>
>
If the question is how is EZNEC reporting it's results the person to ask the question of and the only person who can give a definitive answer is the author of the program. What process did he use in writing the program. A computer program, any program, can only give the answer in terms it is programed to use, using the mathematical formula that is coded into the program. Even R2D2 could only respond according to it's programming.
Let's quit attempting to split hairs and look to the original program for the answer.

Dave N

3682. Re: Capture Area Vs Aperture

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 02:08:34 UTC
From: w8ji@akorn.net
Message-ID: <1143511714.626163.290200@v46g2000cwv.googlegroups.com>
Source record: 62143

Caveat Lector wrote:
> Ok I screwed up by referring to the Sommer antenna site for Capture Area
>
> But I was taught that antenna gain is a function of Aperture - part of the
> classic radar range equation
> https://ewhdbks.mugu.navy.mil/2waymon.htm
>
> For Aperture discussion see URL:
> https://ewhdbks.mugu.navy.mil/ANTENNAS.HTM
>
> So would be interested in your comments on Antenna aperture and antenna gain
> and capture area

If you have an antenna of a known type that happens to be
area-dependent on gain, you could tie gain to physical size (physical
aperture) through a formula.

That isn't to say the relationship holds in anything other than a
specific case. For example if the dish is not formed correctly gain
with drop, despite the dish being a size that would otherwise have
higher gain. This means the capture area would be smaller than you
calculated for a "good dish".

Same for feed system. If the illumination system blocks the area of the
dish or has design flaws, and if gan drops, the effective aperture
would be less for the same size antenna.

Does this make sense to you?

73 Tom

3683. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 02:16:28 UTC
From: w8ji@akorn.net
Message-ID: <1143512188.556841.246670@g10g2000cwb.googlegroups.com>
Source record: 62144

Steve Nosko wrote:
> Another consideration is the fact that these are not full half wave
> *radiators*, but shortened approx to 66%, or 0.33 lambda (when using this
> coax). I

Then that's a big problem.

Unless the outside of the cable has the same Vf as the inside, the sections won't have the correct phasing.

Phelps Dodge did that two ways.

First, when they used solid dielectric coax, they filled the antenna with a very thick wax that gave the correct Vf on the outside of the shield.

Second, when they used air insulated coax inside, they suspended the coax in air with only an occasional piece of foam for spacing.

There is more to this antenna than just throwing some .66vF sections in series! Every coaxial collinear I have built and measured from articles in Ham mags has had virtually no useful gain at zero degrees angle over a dipole.

73 Tom

3684. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 02:18:59 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <9t2dnWEAj7yvALXZRVnyuA@bt.com>
Source record: 62145

> Let's quit attempting to split hairs and look to the original
program
> for the answer.
>
> Dave N
==========

I am not quibbling about what EZNEC reports but what Cecil has *said*
it reports. On the other hand, Cecil may be right. But I hope he is
wrong!

Reg.

3685. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 02:25:58 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns9793BBD9514CDdoldridgsprintca@64.59.135.159>
Source record: 62146

Richard Clark <kb7qhc@comcast.net> wrote in
news:sk9c221qpe0mimc0kj5p7f7fuprc395jvt@4ax.com:

> On Sun, 26 Mar 2006 03:48:19 GMT, Dave Oldridge
> <doldridg@leavethisoutshaw.ca> wrote:
>
>>It gets a bit interesting to implement, though, if the antennas are 2000
>>miles apart!
>
> Hi Dave,
>
> If you mean by interesting, SETI.

Naw, just garden variety radio astronomy.

--
Dave Oldridge+
ICQ 1800667
VA7CZ

3686. what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 02:52:42 UTC
From: tucker@conninc.com
Message-ID: <1143514362.679051.217190@e56g2000cwe.googlegroups.com>
Source record: 62147

I picked up a 1:1 balum at a local hamfest, i got it because it had a N connector and thats the type of connector on my coax. After looking closer i thought it was a 10-40 meter but i
cant make out the print, it may be 10-40mhz.
I desided to open the pvc to find out just what was inside, I found a bunch of ferrite disk stacked over the coax, this wasent my idea of a 1:1 balum. I hoped to make a 160-10 meter
dipole/inverted vee using the proper length wire on each leg for 160,80,40 & 10. My question
is this, will this work at lower frequencys 160 & 80m ? If not what the purpose of the ferrite
disks, it seems that i could just remove the disk if they limit the frequency range, i guess
im trying to inderstand what makes this a balum & what purpose the disk serve?

3687. Re: RTV Silicone And Coax Outer Jacket: Safe ?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:07:16 UTC
From: dplatt@radagast.org
Message-ID: <122ha34a4622e4e@corp.supernews.com>
Source record: 62148

In article <ocvi12p00gduknqjf1ph6teol604e13h8p@4ax.com>,
Wes Stewart <n7ws*@*yahoo.com> wrote:

>If this is indeed his need, then I offer my method. I use
>Plymouth-Bishop No. 122 rubber tape followed by an overwrap of a good
>quality vinyl tape.
>
>http://www.plymouthbishop.com/
>
>If memory serves, I bought the 122 at Home Depot, although their web
>site doesn't show that they carry it anymore. An electrical supply
>house would likely be a source.

My local Home Depot had it in stock as of last week... I bought a
couple of rolls, and they had plenty more.

Their web site seems to show only a fraction of what they have in the
stores.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

3688. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:15:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122hai36j539s1c@corp.supernews.com>
Source record: 62149

Reg Edwards wrote:
> Cec,
>
> Having clarified what *I* am waffling about, are *you* still saying
> that EZNEC reports propagation delay as being dependent on frequency.
> . . .

EZNEC doesn't report time or propagation delay. If it's needed, it must be calculated from the reported phase angles.

Roy Lewallen, W7EL

3689. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:21:31 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122hatvbp1rrid0@corp.supernews.com>
Source record: 62150

You'll find the answer at http://w2du.com/r2ch21.pdf.

Roy Lewallen, W7EL

tucker@conninc.com wrote:
> I picked up a 1:1 balum at a local hamfest, i got it because it had a
> N connector and thats the type of connector on my coax. After looking
> closer i thought it was a 10-40 meter but i
> cant make out the print, it may be 10-40mhz.
> I desided to open the pvc to find out just what was inside, I found a
> bunch of ferrite disk stacked over the coax, this wasent my idea of a
> 1:1 balum. I hoped to make a 160-10 meter
> dipole/inverted vee using the proper length wire on each leg for
> 160,80,40 & 10. My question
> is this, will this work at lower frequencys 160 & 80m ? If not what the
> purpose of the ferrite
> disks, it seems that i could just remove the disk if they limit the
> frequency range, i guess
> im trying to inderstand what makes this a balum & what purpose the disk
> serve?
>

3690. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:49:14 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <_m2Wf.63702$dW3.47673@newssvr21.news.prodigy.com>
Source record: 62151

Reg Edwards wrote:
> Is it phase delay or time delay along the coil which is dependent on
> frequency?

Seems to be both. John P. has already done the math in
another posting. Here's what he said:

> John P. said:
>> Here is that list repeated in units of time, instead of degrees:
>>
>> MHz ns delay
>> 5.5 7.1
>> 5.89 7.4
>> 6 7.5
>> 7 8.5
>> 8 10.2
>> 9 14.2
>> 10 24.7
>> 11 35.7
>> 12 37.7
>> 13 36.8
>> 13.7 37.3
--
73, Cecil http://www.qsl.net/w5dxp

3691. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:56:09 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <tt2Wf.63704$dW3.49504@newssvr21.news.prodigy.com>
Source record: 62152

Reg Edwards wrote:
> I am not quibbling about what EZNEC reports but what Cecil has *said*
> it reports. On the other hand, Cecil may be right. But I hope he is
> wrong!

Well, let me combine my results and John P's.

MHz Degrees Delay in
Freq Phase Shift nanoseconds
5.5 14.13 7.14
5.89 15.68 7.39
6 16.2 7.5
7 21.36 8.5
8 29.47 10.2
9 45.92 14.2
10 88.95 24.7
11 141.38 35.7
12 163.02 37.7
13 172.28 36.8
13.7 183.82 37.2

--
73, Cecil http://www.qsl.net/w5dxp

3692. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 03:59:21 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <tw2Wf.63705$dW3.57479@newssvr21.news.prodigy.com>
Source record: 62153

tucker@conninc.com wrote:
> I desided to open the pvc to find out just what was inside, I found a
> bunch of ferrite disk stacked over the coax, this wasent my idea of a
> 1:1 balum.

You have what is commonly known as a W2DU 1:1 balun-choke
made popular by Walter Maxwell. It's probably not very
effective on 80m and 160m because of the choice of
ferrite materials.
--
73, Cecil http://www.qsl.net/w5dxp

3693. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 04:00:59 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <%x2Wf.63706$dW3.63060@newssvr21.news.prodigy.com>
Source record: 62154

Roy Lewallen wrote:
> EZNEC doesn't report time or propagation delay. If it's needed, it must
> be calculated from the reported phase angles.

In my case, done by installing zero ohm loads at the bottom
and top of the coil for the traveling wave antenna.
--
73, Cecil http://www.qsl.net/w5dxp

3694. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 05:13:05 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <BB3Wf.639365$qk4.378810@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62155

Cecil,

I have sent the files to you, as requested. The resonant whip ended up at about 10 feet, not 8, because I tired of the continuing the optimization. The phase shift found from the traveling wave version was about 7 degrees. The coil was similar to the coil you have been using, except squeezed down to 6 inches tall, 4 TPI. You can refine the models or perform the required adjustments as you wish to get the 8 foot version. I would not expect radical changes, but who knows?

It is always possible that I made a mistake in the modeling. If so, I am confident the entire world will know in short order. 8-)

73,
Gene
W4SZ

Cecil Moore wrote:

>
> Here's what you guys need to do to convince me that you are
> right.
>
> 1. Develop a coil acceptable to EZNEC that resonates an 8
> foot whip on 4 MHz over mininec ground. Send me a copy of
> the EZNEC file.
>
> 2. Put the same coil in the traveling wave environment as
> I have done at: http://www.qsl.net/w5dxp/test316y.GIF
> and report the phase shift through the coil. Send me a
> copy of the EZNEC file.
>
> If you are so right and I am so wrong, that shouldn't be
> too difficult for half a dozen gurus (including the
> developer of EZNEC).

3695. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 05:43:29 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <_L-dnVciYIW1ULXZRVnyuQ@bt.com>
Source record: 62156

"Roy Lewallen" wrote
> EZNEC doesn't report time or propagation delay. If it's needed, it
must
> be calculated from the reported phase angles.
>
> Roy Lewallen, W7EL
==========

EXACTLY! Roy, you knew exactly what I was hunting for!

The phase angle should indeed increase with frequency.
With a true transmission line the increase should be directly
proportional to frequency.

But the propagation delay, with a true transmission line, should be
constant versus frequency as it depends only on coil dimensions and
hence on L and C. The velocity factor should also be a constant.

When the angle is 90 degrees the coil is 1/4-wave resonant.
When the angle is 180 degrees it is 1/2-wave resonant.
The 180 degree frequency should be twice the 90 degree freq.

The differences between the 'measurements' and expectations, on the
basis of a true transmission line, can perhaps be explained by the
very small ratio of wire diameter to winding pitch. (Who would use
such a coil to load an antenna anyway?)

The ratio of coil diameter to coil length is large. Therefore
end-effect (as with an antenna wire) becomes quite important.

I have no idea what else may have been 'connected' to the coil when
inside EZNEC. Could it have affected measurements? Would it be
possible to 'measure' input impedance looking into one end of a coil
with the other end disconnected?

Regarding the calculated values of delay time there seems to be
something wrong. There is a simple relationship between phase angle
and length of coil and time. What was the formula used to calculate
propagation time? If the correct formula was used does this point to
somthing peculiar with EZNEC's own calculations?

Can't think any more.

Reg.

3696. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 06:24:55 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <HdednU7HYbHISLXZ4p2dnA@adelphia.com>
Source record: 62157

Reg Edwards wrote:
(snip)
> What was the formula used to calculate
> propagation time?

Glad you asked. I calculated (1/f)*(angle/360) or period of one cycle times fraction of a period. I assumed that all the phase shifts given were less than one period, total. I was hoping someone else would calculate the delays and correct any mistakes in my method or results.

>If the correct formula was used does this point to
> somthing peculiar with EZNEC's own calculations?
>
> Can't think any more.

Or it points to the coil in question not acting purely like a transmission line over this range of frequencies. How would a short length of transmission line act if you parallel it, end to end with capacitance? This coil certainly has end to end capacitance.

At some high frequency, that capacitance will, first resonate with the inductance, forming a trap (with a rapid phase change with respect to frequency), and above that, bypass the antenna current around the inductance. At very low frequencies, with a low impedance on each side, almost pure inductance probably dominates. In between these, (with appropriate impedance connections), there is probably a frequency range where it acts mostly like a short piece of transmission line, with approximately (a lot less approximate than +-60%) constant delay.

In such a large beast, at the intended frequency of operation, unintended parasitic effects may be as big as the intended inductive effect. These are the problems that make designing good (as in, "act as lumps of inductance") coils interesting.

3697. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 06:29:14 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ZIudnRI4eZ7FS7XZnZ2dneKdnZydnZ2d@adelphia.com>
Source record: 62158

Cecil Moore wrote:
> tucker@conninc.com wrote:
>
>> I desided to open the pvc to find out just what was inside, I found a
>> bunch of ferrite disk stacked over the coax, this wasent my idea of a
>> 1:1 balum.
>
>
> You have what is commonly known as a W2DU 1:1 balun-choke
> made popular by Walter Maxwell. It's probably not very
> effective on 80m and 160m because of the choice of
> ferrite materials.

If you can get an ohm reading when you touch the two probes of an ohm meter to the ferrite, then it is probably a low frequency, high permeability manganese zinc ferrite, and may produce enough common mode impedance to act effectively as a 1:1 balun in this frequency range.

If you measure an open circuit, it is almost certainly higher frequency, lower permeability nickel zinc ferrite and will produce insufficient common mode impedance to be effective as a balun in this frequency range.

3698. Re: Signal Strength Meter for Mobile Phones

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 08:36:40 UTC
From: Mark
Message-ID: <0ath22p7uvugh7d424e45au7lomsbefi4p@4ax.com>
Source record: 62159

Thanks for the info. I have a sony ericsson Z600 and I looked up
secret menu's on google. I found a secret service menu, but this menu
does not include a signal strength reading, is this the menu you
meant?

On Tue, 28 Mar 2006 00:57:27 +0100, Dan Andersson
<dan@andersson.co.uk> wrote:

>Mark wrote:
>
>> I currently offer a service for Mobile Phone users in rural/remote
>> areas, where I fit a Yagi antenna for people with poor reception
>> problems. At the moment I use a Mobile Phone's signal strength reading
>> (along with a map and compass) to locate the strongest signal from the
>> nearest base station (the region where I work, there is only one
>> service provider). Because these readings are a bit slow to respond, I
>> would like to build/buy a simple signal strength meter to be a bit
>> more accurate, when setting up these antenna's. I either need
>> something with a meter or even simpler (and maybe better) headphones
>> listening to the familiar signals sent out by these things, to find
>> the strongest signal. Because I work in very remote areas normally, I
>> am guessing that the base station signals, should not be that hard to
>> distinguish from the normal mish mash of mobile phone signals. Would
>> anybody be kind enough to supply me with a diagram or a web site etc,
>> to help me on my way? PS 950Mhz.
>
>
>Some mobile phones (Ericsson) can be keyed to present the "real" signal
>strength, not only the blobs on your LCD but a Signal Strength number.
>
>Perform a Google search and see what you can find.
>
>Cheers
>
>Dan / M0DFI

3699. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 08:57:33 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <d5qh22t2iio6nh281ebhseo26hqkki4mgo@4ax.com>
Source record: 62160

On Mon, 27 Mar 2006 15:17:35 -0800, Roy Lewallen <w7el@eznec.com>
wrote:

>What most people would call "self capacitance" -- the equivalent
>capacitance from one terminal to the other.

Hi Roy,

Not strictly speaking. It ("self capacitance") is with respect to a
very remote reference, not merely the two plate formulation of the
terminal's geometries to each other (that is more part of the
distributed capacitance).

There are two measures of capacitance. Self capacitance is any body's
capacity to store charge. You don't need a second plate to do that in
the classical math - merely a reference point from which the voltage
is determined (yes, another dimensionless oddity that makes this more
easily said than done). Mutual capacitance, two plate construction,
is the more usual form we all have come to expect - so much so that
the term mutual has fallen into disuse and most express only the
second, isolated term - capacitance.

Tom, a week or so back, asked about the infinitesimal capacitance of a
coil with 15 meters (or so) of wire. He speculated that as the
"second" plate of the (mutual) capacitance was withdrawn to infinity,
that it forced the value to zero. I, on the other hand showed that in
the practical universe:
>> C = 2 ï¿½ Pi ï¿½ epsilon0 ï¿½ L / (ln(b/a))
>>a = 1m (after all, thin is relative at infinite dimensions)
>>L = 15m
>>b= 1,000,000,000,000,000,000,000,...000m (10ï¿½ï¿½ï¿½ meters away)
>>epsilon0 = 0.00000000000885
>>
>> C = 12 femtofarads
>>
>>This was certainly at the limits of my usual Capacitor Bridge to
>>measure to this resolution 30 years ago, but time has marched on. This
>>sized capacitance is certainly encountered every day in my new field
>>of nanotech, and 1 femtofarad is measured by charge transfer
>>techniques.
>>
>>Consider, Einstein's estimate of the radius of the Universe is roughly
>>10 Billion Light Years (ï¿½3dB) As this result above is vastly further
>>away than Einstein's guess (by more than 300 orders of magnitude),
>>lets look at again from his number:
>>

>> C = 12.5 picofarads
>>
>>Oddly enough, this value is on par with the distributed capacitance of
>>the coil's we've been pounding away on (and even more convergent, is
>>this is roughly the same amount of wire used in them).
>>
I extracted this correlation from reports of the coils' self resonant
frequency and their inductance.

Self Capacitance is nothing more than Mutual Capacitance with a second
spherical plate, with a radius of this 10 Billion Light Years.
However, this capacitance is the total bulk of the coil rather than
that distributed to form a transmission line.

Anyway, thinking of a coil in terms of Mutual Capacitance, Distributed
Capacitance, Self Capacitance, Self Inductance, and Mutual Inductance
is a tantalizing prospect to investigate and elevate the topic to this
mythic status of transmission line - but I seem to lack the motivation
to go there. The extraordinary farce is more entertaining.

73's
Richard Clark, KB7QHC

3700. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 09:00:35 UTC
From: w8ji@akorn.net
Message-ID: <1143536434.988436.136700@g10g2000cwb.googlegroups.com>
Source record: 62161

John Popelish wrote:
> In such a large beast, at the intended frequency of operation,
> unintended parasitic effects may be as big as the intended inductive
> effect. These are the problems that make designing good (as in, "act
> as lumps of inductance") coils interesting.

Actual time delay of current through 100 turn 10tpi 2 inch diameter ten inch long inductor:

http://www.w8ji.com/inductor_current_time_delay.htm

73 Tom

3701. Need info about Pyramid antenna and it's performance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 10:29:00 UTC
From: shan_rish@yahoo.com
Message-ID: <1143541740.775116.203150@g10g2000cwb.googlegroups.com>
Source record: 62162

Hi All,

I am a SWL from India and hope to get a ticket soon. I am constructing a simple receiver and i would like to construct a good antenna for my receiver and in future for my transmitter as well. I came across a design in a souvenir released by Hamfest India where an antenna called "Pyramid Antenna" is described. The author gave reference to one design published in Radio Magazibe 1982 by Steve Bauer,DJIUS. I came across another similar design described in http://www.warc.org.uk/clubmag/qsx13.pdf . I would like to know more about this antenna and the experience of using it, and about it's performance. My house is near a 11KV power line and my antenna will be less than 15 feet from the above said power line.

Thanks in advance.

Regards
Shan
SWL

3702. Re: I need help Cecil

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 12:07:07 UTC
From: Buck <not@this.time>
Message-ID: <9n9i22tnmh713cmee2u8ngkj58b73b5mo2@4ax.com>
Source record: 62163

>====================================
>I need help too.
>
>Could some kind person please describe in detail how the "WFL Folded
>Loop Antenna" is folded? It is not at all clear from the description
>and photograph. Originally I assume the loop is square.
>----
>Reg.
>

A close-up of the photo shows four horizontal wires, though not necessarily parallel, and three vertical elements I believe are supports. The horizontal wires are probably connected to each other through those vertical elements. It is possible that the antenna is one long wire woven into that butterfly shape you see in the photo.

Buck
--
73 for now
Buck
N4PGW

3703. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 12:32:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <y1aWf.51941$F_3.13383@newssvr29.news.prodigy.net>
Source record: 62164

Gene Fuller wrote:
> It is always possible that I made a mistake in the modeling. If so, I am
> confident the entire world will know in short order. 8-)

It is also possible that EZNEC cannot be used for this task.
It doesn't make technical sense that the delay through a
coil can go from 7 nS at 5.5 MHz to 38 nS at 12 MHz. I
think that was what was bothering Reg.
--
73, Cecil http://www.qsl.net/w5dxp

3704. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 12:56:04 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <EnaWf.51943$F_3.9756@newssvr29.news.prodigy.net>
Source record: 62165

w8ji@akorn.net wrote:

> John Popelish wrote:
>>In such a large beast, at the intended frequency of operation,
>>unintended parasitic effects may be as big as the intended inductive
>>effect. These are the problems that make designing good (as in, "act
>>as lumps of inductance") coils interesting.
>
> Actual time delay of current through 100 turn 10tpi 2 inch diameter ten
> inch long inductor:
>
> http://www.w8ji.com/inductor_current_time_delay.htm

You didn't measure the time delay through the coil. There is
zero phase change in the standing wave current and the SWR in
your circuit was ~16,000:1. The only way I can think of to
measure the actual delay through a coil is in a traveling
wave environment, not a standing wave environment. No one
has tried to measure the coil delay in a traveling wave
environment.

One more time, the standing wave current phase is unchanging
over every 1/2 wavelength of antenna. At the 1/2WL points it
changes abruptly by 180 degrees.

If you locate a standing wave node inside the coil, you will
measure a 180 degree phase shift through the coil.
--
73, Cecil http://www.qsl.net/w5dxp

3705. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 13:06:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <yxaWf.51945$F_3.42813@newssvr29.news.prodigy.net>
Source record: 62166

w8ji@akorn.net wrote:
> Actual time delay of current through 100 turn 10tpi 2 inch diameter ten
> inch long inductor:

Here is probably the actual time delay through that coil.

W8JI wrote:
> "By the way, I swept S12 phase with my network analyzer on a
> 100uH inductor a few hours ago while working on a phasing
> system. The phase shift through that series inductor was about
> -60 or -70 degrees on 1 MHz, ... "
--
73, Cecil http://www.qsl.net/w5dxp

3706. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 13:15:02 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <UNmdnXzOEdqbqrTZRVny2w@bt.com>
Source record: 62167

It is used to reduce the common mode current which sometimes flows in coaxial and balanced-pair lines.

It is not a transformer. The 1-to-1 is meaningless. It is just a pair of wires wound together, as one wire, on a ferrite core. Or in your case a number of ferrite slugs or rings are placed over a coax line.

In brief, it is just a choke.

Reg.

3707. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 13:55:32 UTC
From: w8ji@akorn.net
Message-ID: <1143554132.004279.204770@z34g2000cwc.googlegroups.com>
Source record: 62168

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > Actual time delay of current through 100 turn 10tpi 2 inch diameter ten
> > inch long inductor:
>
> Here is probably the actual time delay through that coil.
>
> W8JI wrote:
> > "By the way, I swept S12 phase with my network analyzer on a
> > 100uH inductor a few hours ago while working on a phasing
> > system. The phase shift through that series inductor was about
> > -60 or -70 degrees on 1 MHz, ... "
> --
> 73, Cecil http://www.qsl.net/w5dxp

Once again Cecil's famous selective editing allows him to remove things
from context and change the results to suit his unusual ideas.

The sad part is now I'm positive Cecil knows exactly what he is doing.
I know that because it was explained here in this thread what the
measurements were, and he understood the data.

This is why I think getting into a long technical discussion with Cecil
is a waste of time. He will selectively edit any exchange to suit his
needs, and then the whole thing has to be repeated.

73 Tom

3708. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 14:31:19 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <XMbWf.43106$_S7.34202@newssvr14.news.prodigy.com>
Source record: 62169

w8ji@akorn.net wrote:
>>W8JI wrote:
>>>"By the way, I swept S12 phase with my network analyzer on a
>>>100uH inductor a few hours ago while working on a phasing
>>>system. The phase shift through that series inductor was about
>>>-60 or -70 degrees on 1 MHz, ... "
>
> Once again Cecil's famous selective editing allows him to remove things
> from context and change the results to suit his unusual ideas.

Noted is your complete lack of technical response which is obvious
by its absence. Were you fibbing when you said you measured "-60 or
-70 degrees on 1 MHz"?

I didn't change a thing, Tom. That is an exact quote from you. The
paragraph above and below were about other topics.

> This is why I think getting into a long technical discussion with Cecil
> is a waste of time.

You have never engaged me in even a short technical discussion.
99% of the technical content of my postings are ignored by you.
One wonders why.
--
73, Cecil http://www.qsl.net/w5dxp

3709. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 15:12:22 UTC
From: Bill Ogden <wogden@attglobal.net>
Message-ID: <L3cWf.4$FA6.2@fe12.lga>
Source record: 62170

Please do not think you are getting something for nothing with an interferometer. In radio astronomy you have a large number of RF sources (stars and other interesting objects) transmitting at more or less the same frequencies. The trick is to select the same source signal for phase analysis.

Bill W2WO

3710. Looking for Hygain informatrion

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 15:30:54 UTC
From: Bill Booth <710138@ican.net>
Message-ID: <15db7$442956a4$d169d1c5$14331@PRIMUS.CA>
Source record: 62171

am looking for a south center meter face for the HamIV rotor. Maybe someone knows of a face JPG that you can download and print on stickey paper. Yes I have checked to make sure that face is not behind the existing north center face.

Also how does one figure out the coils of a TH7DXX antenna. The paint has long gone on most of the traps on mine. I moved a couple of years ago and now getting ready to put it together and installed..... Now how do I figure out the trap locations.....

--
Bill Booth VE3NXK
Sundridge ON, Canada
79.23.37 W x 45.46.18 N
FN05ns

Visit my weather WebCam at http://www.almaguin.com/wxcurrent/weather.html

3711. Re: Need info about Pyramid antenna and it's performance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 15:43:01 UTC
From: John Ferrell <johnferrell@sprintmail.com>
Message-ID: <c3mi22l6q7g3fj1qniqlusibkvd9kb72of@4ax.com>
Source record: 62172

I have no experience with this antenna but I always recomend a 1/2
wave dipole to start with. It is more likely than any other antenna to
give good results under all conditions. Save the complicated things
for later!

Having said that, I must add that I would not install ANY antenna only
15 feet from an 11 KV transmission line!

There has to be another way.

On 28 Mar 2006 02:29:00 -0800, shan_rish@yahoo.com wrote:

>Hi All,
>
>I am a SWL from India and hope to get a ticket soon. I am constructing
>a simple receiver and i would like to construct a good antenna for my
>receiver and in future for my transmitter as well. I came across a
>design in a souvenir released by Hamfest India where an antenna called
>"Pyramid Antenna" is described. The author gave reference to one design
>published in Radio Magazibe 1982 by Steve Bauer,DJIUS. I came across
>another similar design described in
>http://www.warc.org.uk/clubmag/qsx13.pdf . I would like to know more
>about this antenna and the experience of using it, and about it's
>performance. My house is near a 11KV power line and my antenna will be
>less than 15 feet from the above said power line.
>
>Thanks in advance.
>
>Regards
>Shan
>SWL
John Ferrell W8CCW

3712. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 17:05:01 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <gJidnWG_QLbE9rTZ4p2dnA@adelphia.com>
Source record: 62173

Reg Edwards wrote:
> It is used to reduce the common mode current which sometimes flows in
> coaxial and balanced-pair lines.
>
> It is not a transformer. The 1-to-1 is meaningless. It is just a pair
> of wires wound together, as one wire, on a ferrite core. Or in your
> case a number of ferrite slugs or rings are placed over a coax line.
>
> In brief, it is just a choke.

But a choke with two wires wound through it is two inductors that also
have mutual inductance between them, and if that doesn't define a
transformer, what does?

It is true that this device acts as a choke for common mode current
(the component of the two currents through the two conductors that is
in phase). A choke is an inductance, which produces voltage across
the terminals of the conductor passing through that is proportional to
the rate of change of the current. In this case, it produces a
voltage across both the shield section inside the cores and also
across the center conductor inside the cores, that is proportional to
the rate of change of the common mode current. It is this voltage
that alters the displacement currents in the two terminals at the
antenna end, to make them look like a more balanced signal, and at the
transmission line end, more like a single ended one.

3713. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 17:15:26 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <65ri22l7do67uuuuc16agu18mpe1emvga1@4ax.com>
Source record: 62174

On Tue, 28 Mar 2006 12:05:01 -0500, John Popelish <jpopelish@rica.net>
wrote:

>But a choke with two wires wound through it is two inductors that also
>have mutual inductance between them, and if that doesn't define a
>transformer, what does?

Hi John,

Then you think of it as an air core transformer with series driven,
bucking sections. Now, what kind of practical transformer does that
define? 1:1 does not automatically spring to mind unless it is
isolating one circuit from the other. However, it is not the
transformer that does that, it is the choking ferrite and only in the
service of snubbing common mode currents.

With this in mind, do we add a characteristic of loss to the
definition? A lossy air core transformer with series driven, bucking
sections.

You are bordering on stretching the definition of power transformer
over the application of a BalUn. This is not always useful. So, what
does it transform? A balanced circuit to an unbalanced circuit (or
versa vice).

73's
Richard Clark, KB7QHC

3714. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 17:32:59 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <freWf.9871$tN3.9130@newssvr27.news.prodigy.net>
Source record: 62175

Reg Edwards wrote:
> In brief, it is just a choke.

And a Balun if there is enough choking action.
--
73, Cecil http://www.qsl.net/w5dxp

3715. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 17:59:52 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <gIOdnW8Braap5bTZRVn-tg@adelphia.com>
Source record: 61976

Richard Clark wrote:
> On Tue, 28 Mar 2006 12:05:01 -0500, John Popelish <jpopelish@rica.net>
> wrote:
>
>
>>But a choke with two wires wound through it is two inductors that also
>>have mutual inductance between them, and if that doesn't define a
>>transformer, what does?
>
>
> Hi John,
>
> Then you think of it as an air core transformer with series driven,
> bucking sections. Now, what kind of practical transformer does that
> define? 1:1 does not automatically spring to mind unless it is
> isolating one circuit from the other. However, it is not the
> transformer that does that, it is the choking ferrite and only in the
> service of snubbing common mode currents.
>
> With this in mind, do we add a characteristic of loss to the
> definition? A lossy air core transformer with series driven, bucking
> sections.

Air core? It is a ferrite core transformer with two one turn
windings. One winding is the shield passing through the holes in the
cores and the other winding is the center conductor passing through
the windings. (view with fixed width font, like Courier)

```
|half of dipole
. |
Center cond.-----MMMM-+
.
Shield-----------MMMM-+
|
|half of dipole
```

MMMM represents a transformer winding.

On the left side, essentially all the voltage is on the center
conductor, and on the right side, half of that voltage is on the top
side of the dipole, and its negative is applied to the bottom side.
So half of the instantaneous voltage of the center conductor just to
the left of the transformer appears across each of the transformer
windings. It is a 1:1 voltage transformer. That half is subtracted
from the center conductor voltage and added to the shield voltage.

If the individual winding inductive impedance is high at the frequency of operation, it has the effect of forcing the total instantaneous current through the pair of windings to be very low. But it also allows, with almost total transparency, that the instantaneous current through either conductor can be any value, as long as the it is canceled by an equal and opposite instantaneous current through the other winding. So it enforces equal and opposite currents in the two conductors, which is exactly what you want in a coax and a dipole, while allowing the dipole voltages to be equal and opposite, but all the voltage to appear only on the center conductor of the coax.

> You are bordering on stretching the definition of power transformer
> over the application of a BalUn. This is not always useful. So, what
> does it transform? A balanced circuit to an unbalanced circuit (or
> versa vice).

Unbalanced on the coax side, and balanced on the dipole side. If the dipole were not balanced, the currents in the two legs would not be equal, and this current mismatch would cause the transformer to produce more or less voltage across the windings, in the direction that forces those two currents to be more equal. This thing is not nearly a classic transmission line balun, but is quite nearly a classical 1:1 transformer.

3716. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 19:02:44 UTC
From: tucker@conninc.com
Message-ID: <1143572564.426160.55950@e56g2000cwe.googlegroups.com>
Source record: 61977

I mainly wanted to know if it would work on 160 & 80m, I dont care
if it acts like a choke/balun only at higher frequencys as long as
as it doesnt interfere with 160 & 80s swr. Normally i just use coax
hooked to each leg cut to frequency, without a balun. Its allways
worked in the past years, i just thought it would be alot easier to use
the ready made balun than try and makeup a weatherproof
hanger

3717. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 19:03:41 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e0c1adcfg2@engnntp2.cig.mot.com>
Source record: 61980

"Bill Ogden" <wogden@attglobal.net> wrote in message
news:L3cWf.4$FA6.2@fe12.lga...
> Please do not think you are getting something for nothing with an
> interferometer. In radio astronomy you have a large number of RF sources
> (stars and other interesting objects) transmitting at more or less the
same
> frequencies. The trick is to select the same source signal for phase
> analysis.
>
>
> Bill W2WO
>
>

Seems to me there are two things of major concern. 1- getting close to the target and and 2- phase wrap.

Anyway...
How do they actually distinguish phase in the GHz range between two dishes across the country/world? I heard they use recordings, but that can't be right since they'd need pico second timing accuracy...

73, Steve, K9DCi

3718. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 19:17:14 UTC
From: dplatt@radagast.org
Message-ID: <122j2tqkfjasb5f@corp.supernews.com>
Source record: 61978

In article <1143572564.426160.55950@e56g2000cwe.googlegroups.com>,
<tucker@conninc.com> wrote:

> I mainly wanted to know if it would work on 160 & 80m, I dont care
>if it acts like a choke/balun only at higher frequencys as long as
>as it doesnt interfere with 160 & 80s swr.

It should not interfere. If the ferrites don't have enough reactance
to make it act as an effective choke on 160/80, then it'll just "look
like" a foot or two of coax to the signals.

--
Dave Platt <dplatt@radagast.org> AE6EO
Hosting the Jade Warrior home page: http://www.radagast.org/jade-warrior
I do _not_ wish to receive unsolicited commercial email, and I will
boycott any company which has the gall to send me such ads!

3719. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 19:36:55 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <AcqdnUJhPbJvE7TZnZ2dnUVZ_u-dnZ2d@adelphia.com>
Source record: 61979

tucker@conninc.com wrote:
> I mainly wanted to know if it would work on 160 & 80m, I dont care
> if it acts like a choke/balun only at higher frequencys as long as
> as it doesnt interfere with 160 & 80s swr. Normally i just use coax
> hooked to each leg cut to frequency, without a balun. Its allways
> worked in the past years, i just thought it would be alot easier to use
> the ready made balun than try and makeup a weatherproof
> hanger.

So what ohm reading do you read between two points on one of the cores?

3720. Homebrew 20m 3 element Yagi

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 19:57:18 UTC
From: sfritchie <sfritchie@cox.net>
Message-ID: <sygWf.275$Fo3.110@fed1read01>
Source record: 61981

I have a homebrew 3 element 20m yagi that can be had for free. It will need some repair and at least one element will need to be straightened. There is no documentation for the antenna that I'm aware of. It is free, but you'll have to pick it up in Tucson, Arizona, I will not ship it. I can be reached here or at (520) -790-8361 after 11:00 AM.
Thanks,
Spencer KC2TX

3721. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 20:41:05 UTC
From: Dave Oldridge <doldridg@leavethisoutshaw.ca>
Message-ID: <Xns979480F425D33doldridgsprintca@64.59.135.159>
Source record: 61982

"Bill Ogden" <wogden@attglobal.net> wrote in
news:L3cWf.4$FA6.2@fe12.lga:

> Please do not think you are getting something for nothing with an
> interferometer. In radio astronomy you have a large number of RF
> sources (stars and other interesting objects) transmitting at more or
> less the same frequencies. The trick is to select the same source
> signal for phase analysis.

Yep...it won't give you any louder signals but it will help you ascertain
exactly where they are coming from.

--
Dave Oldridge+
ICQ 1800667

3722. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-28 22:51:29 UTC
From: "J. Mc Laughlin" <jcm@power-net.net>
Message-ID: <122jfg3a4mlfh2e@corp.supernews.com>
Source record: 61983

My oh my! I looked down and saw that there were many hundreds of messages that I had not read - might have been twice that number, but I do have an automatic purge turned on.

For two weeks there has been a theological discussion going on.

All of this was thrashed out years ago - perhaps it was at Worms many centuries ago.

A lesson from an old man: I ran a rural zoning board for 18 years, McLaughlin's rule for running the meeting was that everyone could have a say and one rebuttal after everyone had had their say. (The perversity that was sometimes exhibited at the zoning board meeting quite exceeded anything you gentle people could put forth.)

Perhaps a modern equivalent that is applicable is: do not feed the trolls

This is a great group. 73 Mac N8TT

--
J. Mc Laughlin; Michigan U.S.A.
Home: JCM@Power-Net.Net

3723. Re: Coax Connectors & Adapters, new catalog now available

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:01:02 UTC
From: safemale <safemale@earthlink.net>
Message-ID: <aumj225ugtdacg94hs4kolfavccj7rktdm@4ax.com>
Source record: 61984
Cross-posted to: rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebrew

UNLIKE YOU I CAN OVER LOOK A MESSAGE IF I DONT CARE FOR IT
and yes i was bellowing at the top of my lungs at you
safe male

On Mon, 27 Mar 2006 16:47:33 -0500, Larry <noone@home.com> wrote:

>"AAA RF Products" <sales@aaarfproducts.com> wrote in news:UDWVf.382
>$CL6.69@fed1read11:
>
>> For your free copy of our new catalog,
>>
>> please email sales@AAARFProducts.com
>>
>> or see www.aaarfproducts.com
>>
>> or call 949 481 3154 (San Clemente, CA, USA)
>>
>> No minimum order.
>>
>> No handling charges.
>>
>>
>
>www.mouser.com
>
>You can order ONE resistor, if you like.....3c + shipping...(c;
>
>Great prices on millions of parts. I use them all the time.
>
>They don't need to spam the internet....
>
>He won't, either, after Cox Cable gets done with him....abuse@cox.net
>Include this header below...Adios!
>Send a copy to abuse@giganews.com, too, just for kicks. He's easy to
>find with his IP ass hangin' out like that (64.58.167.76 in every
>header). I did...(c;
>
>
>
>Path: be02!atl-c01.usenetserver.com!news.usenetserver.com!atl-
>c05.usenetserver.com!news.usenetserver.com!postnews.google.com!
>news3.google.com!border1.nntp.dca.giganews.com!
>border2.nntp.dca.giganews.com!nntp.giganews.com!peer01.cox.net!cox.net!
>p01!fed1read11.POSTED!53ab2750!not-for-mail

>From: "AAA RF Products" <sales@aaarfproducts.com>
>Newsgroups:
>rec.boats.electronics,rec.radio.amateur.antenna,rec.radio.amateur.homebre
>w
>Subject: Coax Connectors & Adapters, new catalog now available
>Lines: 13
>X-Priority: 3
>X-MSMail-Priority: Normal
>X-Newsreader: Microsoft Outlook Express 6.00.2900.2180
>X-MimeOLE: Produced By Microsoft MimeOLE V6.00.2900.2180
>X-RFC2646: Format=Flowed; Original
>Message-ID: <UDWVf.382$CL6.69@fed1read11>
>Date: Mon, 27 Mar 2006 11:03:08 -0800
>NNTP-Posting-Host: 64.58.167.76
>X-Complaints-To: abuse@cox.net
>X-Trace: fed1read11 1143486068 64.58.167.76 (Mon, 27 Mar 2006 14:01:08
>EST)
>NNTP-Posting-Date: Mon, 27 Mar 2006 14:01:08 EST
>Organization: Cox Communications
>Xref: usenetserver.com rec.boats.electronics:159807
>rec.radio.amateur.antenna:322471 rec.radio.amateur.homebrew:196504
>X-Received-Date: Mon, 27 Mar 2006 14:01:11 EST (be02)

3724. Re: Antenna Phase (Kraus)--Interferometry with Two Antennas

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:24:04 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <4429e1b4$0$7326$39cecf19@news.twtelecom.net>
Source record: 61985

Richard Clark wrote:
> On Fri, 24 Mar 2006 18:48:28 GMT, "W. Watson"
> <wolf_tracks@invalid.com> wrote:
>
>
>>There are several cases, which
>>involve fixed or differences in phase and amplitude he considers, Chap. 4,
>>sect. 4.2. Can anyone make the idea of phase dependency for an antenna,

<SNIP!>

> 73's
> Richard Clark, KB7QHC

Thanks, Richard, for this and the one that follows. Well put.

tom
K0TAR

3725. Re: highwind,rohn25,stayerect???

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:25:11 UTC
From: Ken <VHFNUT@whoknows.net>
Message-ID: <1b-dncf8mPxqfLTZnZ2dnUVZ_v6dnZ2d@adelphia.com>
Source record: 61986

Unless you live in an area where the wind exceeds 70 mph you should be OK I have a 50 foot 25G tower, no guys that has a 4 ele 6 meter, 13 ele 2 mtr, and a 15 element 432 beam on it and it has stood the test of time (15 years). It is mounted in a cubic yard of concrete with proper base with no problems at all. Winds here seldom exceed 40 mph but ocassionally hits 70 mph and have seen gusts to 87 mph.
73

<lorentsonci@lycos.com> wrote in message
news:qnlaj1h293ipshn3ssqg9msun2f00891e2@4ax.com...
> What should a rohn 25 properly guyed, 50ft tower with two meter/440
> ground plane antennas be able to 'handle high wind wise'??
> Watching the news/weagther, I feel some will 'bite the dust'.
> Appreciate your input. cl.

3726. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:35:09 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <4429e44e$0$7326$39cecf19@news.twtelecom.net>
Source record: 61987

jawod wrote:

> However, you have the better point: Hydrogen spells danger. Hydrogen,
> Hindenburg,...If being a survivor means being a pansy...cool.

Most of the people that died in the Hindenburg disaster were killed by
burning diesel fuel, which radiates lots of heat, key word being radiate.

Burning hydrogen is fairly safe to stand in the middle of, as long as
you have an air supply, since it does not radiate in the infrared range.
And before someone responds, a hydrogen torch would be different, and
was not the case here.

Those not killed by the diesel fuel, or other non-hydrogen burning items
were killed by the fall.

tom
K0TAR

3727. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:39:52 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <cloj2211p0p5b1gpga6eqefsiqv4347gef@4ax.com>
Source record: 61988

On Tue, 28 Mar 2006 12:59:52 -0500, John Popelish <jpopelish@rica.net>
wrote:
>> With this in mind, do we add a characteristic of loss to the
>> definition? A lossy air core transformer with series driven, bucking
>> sections.
>
>Air core? It is a ferrite core transformer with two one turn

Hi John,

If there's a transformer in the sense of windings; then it is an air
core, the ferrite is wholly transparent to the transverse currents.
You could remove the ferrite and it wouldn't make a bit of difference
in that sense of transforming.

>this current mismatch would cause the transformer to
>produce more or less voltage across the windings
In fact, nothing of that sort happens - at least not by your
description. The ferrite is simply bulk resistance inserted into the
common mode path. That is why common mode current is suppressed. The
same thing occurs in the coiled transmission line choke, but the
resistance is replaced by reactance. Again, common mode current is
snubbed by encountering this too.

The transformer property is in the isolation of the balanced circuit
from the unbalanced circuit through this resistive characteristic.

You are missing one path. The two from the source in the form of the
inner shield of the coax, and the center conductor, and the one from
the load in the form of the outer shield of the coax (same shield, but
isolated circuits). Further, there is no flux linkage of the two
conductors coming from the source. Their magnetic lines never break
the cores, whereas the common mode current does break the core which
thus inserts the resistance of the ferrite.

73's
Richard Clark, KB7QHC

3728. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:43:35 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <4epj22l9l8812hfd8cpe0836khiskqn8ar@4ax.com>
Source record: 61989

On 28 Mar 2006 11:02:44 -0800, tucker@conninc.com wrote:

>I dont care
>if it acts like a choke/balun only at higher frequencys as long as
>as it doesnt interfere with 160 & 80s swr.

Hi OM,

There is a world of improvement of understanding BalUns slated for
you, but
>Its allways worked in the past years
suggests you should skip that line of inquiry and simply go back to
working your scheds. If you encounter problems, then is the time to
ask questions.

73's
Richard Clark, KB7QHC

3729. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:56:15 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <18qj22t7dev0s2pa5a9ulqbvroo8jifk39@4ax.com>
Source record: 61990

On Tue, 28 Mar 2006 17:39:52 -0800, Richard Clark <kb7qhc@comcast.net>
wrote:

>Further, there is no flux linkage of the two
>conductors coming from the source.

That was not correctly expressed, the flux between the two are tightly
bound and:
>Their magnetic lines never break
>the cores, whereas the common mode current does break the core which
>thus inserts the resistance of the ferrite.

3730. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 01:57:56 UTC
From: tucker@conninc.com
Message-ID: <1143597476.463676.41110@z34g2000cwc.googlegroups.com>
Source record: 61991

John I will have to take it down and measure it, im going to do it anyway because the balun will not load up like it should even with wire on each leg cut to the proper length. I dosent dip with the dip meter at the proper freq either, after i take it down ill post the ohmeter results.

3731. Re: highwind,rohn25,stayerect???

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 02:50:24 UTC
From: w8ji@akorn.net
Message-ID: <1143600624.806675.58990@i40g2000cwc.googlegroups.com>
Source record: 61992

> <lorentsonci@lycos.com> wrote in message
> news:qnlaj1h293ipshn3ssqg9msun2f00891e2@4ax.com...
> > What should a rohn 25 properly guyed, 50ft tower with two meter/440
> > ground plane antennas be able to 'handle high wind wise'??
> > Watching the news/weagther, I feel some will 'bite the dust'.

I have a 200ft tall Rohn 25 that has handled 1/2 radial inch of ice. It has also handled winds over 100 MPH several times.

It is properly guyed to Rohn specs. It is also 25G.

I see quite a few people who think they have 25G when they really have Rohn 20.

Rohn 20 and 25 look the same and actually fit each other, except Rohn 20 is thinner wall and has fewer cross braces.

I used to be systems engineer for a company that had several dozens of CATV antenna systems. We had dozens of sites with 50-100 feet of Rohn 25 loaded with a microwave link antenna and a few TV antennas. In every single case of a tower failure, it was due to a guyline being installed incorrectly. Either clamps on backwards, wrong style turnbuckle, or other hardware problems were most common. When the guys were installed correctly, the towers would last forever. I remember one that was standing (stripped of antennas by a tornado) and the apartment building next to it had no roof left!

73, Tom

3732. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 03:33:18 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <0bWdnV-LRfAGY7TZRVn-sg@adelphia.com>
Source record: 61993

Richard Clark wrote:
> On Tue, 28 Mar 2006 12:59:52 -0500, John Popelish <jpopelish@rica.net>
> wrote:

>>Air core? It is a ferrite core transformer with two one turn
>
> Hi John,
>
> If there's a transformer in the sense of windings; then it is an air
> core, the ferrite is wholly transparent to the transverse currents.

I said that. It is a common mode transformer.

> You could remove the ferrite and it wouldn't make a bit of difference
> in that sense of transforming.

The short length of the two conductors passing through the ferrite is
certainly a poorer transformer (less mutual inductance between them)
if you remove the cores.

>>this current mismatch would cause the transformer to
>>produce more or less voltage across the windings
>
> In fact, nothing of that sort happens - at least not by your
> description. The ferrite is simply bulk resistance inserted into the
> common mode path.

Make that, "impedance (mostly inductive, if the ferrite is well suited
to the frequency)" and I agree.

> That is why common mode current is suppressed. The
> same thing occurs in the coiled transmission line choke, but the
> resistance is replaced by reactance. Again, common mode current is
> snubbed by encountering this too.

I agree with this, except that the purpose of the ferrite is to
increase the common mode inductance of the section of coax passing
through it, not add resistance. Some resistance is inevitable,
because no ferrite is lossless, but the intention is for inductance.

> The transformer property is in the isolation of the balanced circuit
> from the unbalanced circuit through this resistive characteristic.

Try transmitting through such a resistance and you are going to lose a
lot of your power.

> You are missing one path. The two from the source in the form of the
> inner shield of the coax, and the center conductor, and the one from

> the load in the form of the outer shield of the coax (same shield, but
> isolated circuits).

I can't parse this. There are two metal conductors entering the
choke, and two exiting it. All currents pass through those 4 conductors.

> Further, there is no flux linkage of the two
> conductors coming from the source. Their magnetic lines never break
> the cores,

I think you mean by this that a normal unbalanced signal in a coax has
no magnetic field external to the shield. It is all between the
center conductor and the shield. And I agree that this is what you
are trying to accomplish by adding this two conductor choke between
the coax and the balanced antenna. Without it, there would be some
magnetic field from a net (uncanceled) current and voltage on the
outside of the shield that would cause the coax to radiate. And the
voltages and currents fed to the balanced antenna would not be equal
and opposite (balanced) but somewhat unbalanced. There would also be
non equal currents in the center conductor and shield. I think we
agree on all that, but have a different picture of how a choke balun
corrects these problems.

> whereas the common mode current does break the core which
> thus inserts the resistance of the ferrite.

The common mode current causes flux in the core, and the conductors
passing through that flux produce a voltage proportional to the rate
of change of that flux, just as the conductor passing through any
inductor would. The transformer aspect is that since both conductors
pass through the exact same rate of change of flux, there is the same
voltage produced at the ends sticking out of the core, and this
voltage gets algebraically added to what is already there. If the
inductance of each winding is high enough (5 to 10 times the coax
impedance) a very small common mode current is enough to produce a
large enough voltage across the ends to the two conductors to correct
most of the unbalanced to balanced coupling.

Admittedly, there is no need to get this inductance (including mutual
inductance) with the aid of ferrite around the coax. You could just
wind the coax into an air core transformer. But it would be
considerable larger than one made with a high permeability core,
though, probably lower loss.

3733. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 04:52:29 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122k4khn75rts70@corp.supernews.com>
Source record: 61994

John Popelish wrote:
> Richard Clark wrote:
>>. . .

>> In fact, nothing of that sort happens - at least not by your
>> description. The ferrite is simply bulk resistance inserted into the
>> common mode path.
>
> Make that, "impedance (mostly inductive, if the ferrite is well suited
> to the frequency)" and I agree.

"Low frequency" ferrites are well suited to applications as HF chokes and broadband transformers. What you don't want to do is use them for a high Q inductor in a filter, tuned circuit, or similar application.

>> That is why common mode current is suppressed. The
>> same thing occurs in the coiled transmission line choke, but the
>> resistance is replaced by reactance. Again, common mode current is
>> snubbed by encountering this too.
>
> I agree with this, except that the purpose of the ferrite is to increase
> the common mode inductance of the section of coax passing through it,
> not add resistance. Some resistance is inevitable, because no ferrite
> is lossless, but the intention is for inductance.

Baluns work fine with a resistive impedance, with the exception of applications involving large power. In fact, resistive impedance is desirable because the impedance changes little with frequency, and is relatively free of resonance effects. (More below.)
>
>> The transformer property is in the isolation of the balanced circuit
>> from the unbalanced circuit through this resistive characteristic.
>
> Try transmitting through such a resistance and you are going to lose a
> lot of your power.

You're not "transmitting through" a balun's impedance. Only the common mode current effectively flows through it, and the power dissipated by the balun is Icm^2 * R, where Icm is the common mode current and R is the resistive part of the balun's common mode impedance. If R is small, dissipation is low. But if R is large, that makes Icm small, so dissipation is also low. It's really an impedance matching problem when the balun is resistive -- a very low or very high balun R results in low dissipation. Dissipation is maximum at some intermediate value of R and decreases on each side.

A typical balun made with "low frequency" ferrite (e.g. Fair-Rite 70 series) and operating at HF or above (and therefore primarily resistive) having a common mode impedance of 500 ohms or greater generally won't dissipate any significant fraction of the transmitted power. However, if you're running high power, even a fraction of a dB dissipated in the balun will cause it to overheat. Consequently, people running high power often resort to type 43 ferrite (a Fair-Rite designation; or its equivalent from other manufacturers), which is less resistive than lower frequency ferrites. In extreme cases, high frequency (60 series) ferrite is necessary. The problem is that it's increasingly difficult to get adequate impedance with the higher frequency ferrites. Type 43 is often a good compromise, and it's widely available in many core sizes.

> . . .
> I think you mean by this that a normal unbalanced signal in a coax has
> no magnetic field external to the shield. It is all between the center
> conductor and the shield. And I agree that this is what you are trying
> to accomplish by adding this two conductor choke between the coax and
> the balanced antenna. Without it, there would be some magnetic field
> from a net (uncanceled) current and voltage on the outside of the shield
> that would cause the coax to radiate. And the voltages and currents
> fed to the balanced antenna would not be equal and opposite (balanced)
> but somewhat unbalanced. There would also be non equal currents in the
> center conductor and shield. I think we agree on all that, but have a
> different picture of how a choke balun corrects these problems.
> . . .

Common and differential mode currents are physically separated in a coax cable, and so are the fields from the two components, providing that the shield is at least several skin depths thick. The differential mode current and its fields are entirely inside the coax, decaying rapidly as you go outward from the inner boundary of the shield. By the time you reach the outer boundary of the shield the fields from the differential current is negligibly small. So any core you put over the coax doesn't see or interact with the common mode current or its fields at all, and you can completely ignore it when analyzing balun action. Similarly, you can ignore the core when analyzing the differential mode properties of the system. The common mode current resides in a thin layer on the outside of the shield, it and its fields never reaching the inside. The balun provides an impedance to this current just as it would to any current on the outside of a conductor.

When bifilar wound, the fields from the differential mode current are primarily between the turns, although some relatively small amount extends beyond to interact with the core. The net result is nearly the same.

>. . .

Roy Lewallen, W7EL

3734. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 05:12:00 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <AGoWf.49173$2O6.15724@newssvr12.news.prodigy.com>
Source record: 61995

Roy Lewallen wrote:
> So any core you put over the coax doesn't
> see or interact with the common mode current or its fields at all, and
> you can completely ignore it when analyzing balun action.

Roy probably meant "differential" above instead of "common".
Cores on coax definitely "interact with the common mode current
or its fields" and that is their purpose.
--
73, Cecil http://www.qsl.net/w5dxp

3735. Re: Need info about Pyramid antenna and it's performance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 05:15:13 UTC
From: shan_rish@yahoo.com
Message-ID: <1143609313.144041.3200@v46g2000cwv.googlegroups.com>
Source record: 61996

John Ferrell wrote:
> I have no experience with this antenna but I always recomend a 1/2
> wave dipole to start with. It is more likely than any other antenna to
> give good results under all conditions. Save the complicated things
> for later!
>
> Having said that, I must add that I would not install ANY antenna only
> 15 feet from an 11 KV transmission line!
>
> There has to be another way.
>
> On 28 Mar 2006 02:29:00 -0800, shan_rish@yahoo.com wrote:
>
> >Hi All,
> >
> >I am a SWL from India and hope to get a ticket soon. I am constructing
> >a simple receiver and i would like to construct a good antenna for my
> >receiver and in future for my transmitter as well. I came across a
> >design in a souvenir released by Hamfest India where an antenna called
> >"Pyramid Antenna" is described. The author gave reference to one design
> >published in Radio Magazibe 1982 by Steve Bauer,DJIUS. I came across
> >another similar design described in
> >http://www.warc.org.uk/clubmag/qsx13.pdf . I would like to know more
> >about this antenna and the experience of using it, and about it's
> >performance. My house is near a 11KV power line and my antenna will be
> >less than 15 feet from the above said power line.
> >
> >Thanks in advance.
> >
> >Regards
> >Shan
> >SWL
> John Ferrell W8CCW

Thank you John. My dad is a HAM and his call sign is VU3SMX. He is not
active on the band nowadays because of his age, 70 years. I used to
help him erect antennas and we had experience with inverted V antennas.
In our previous QTH we didnt have any problems with the erection of
antennas, because we had ample space.
My new QTH is in Bangalore and this antenna came from another Indian
HAM Kannan (VU2KBX) who used this type of antenna in noisy conditions.
He is an Electrical engineer and lives near to a Electrical-Substation.
Iam sending the said article to you to your mail id:
johnferrell@sprintmail.com for your reference. Thanks again for the

help.
Regards
Shan SWL.

3736. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 05:17:36 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QLoWf.49174$2O6.11606@newssvr12.news.prodigy.com>
Source record: 61997

Gene Fuller wrote:
> I have sent the files to you, as requested.
> It is always possible that I made a mistake in the modeling. If so, I am
> confident the entire world will know in short order. 8-)

Ten turns per foot is not what I had in mind for modeling my 4TPI
75m bugcatcher coil and the EZNEC guideline violations are a little
discouraging. I have an EZNEC file for a omnidirectional 20 dBi
antenna if you would like to have it. :-)
--
73, Cecil http://www.qsl.net/w5dxp

3737. Re: 1n21 diode housing

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 06:00:50 UTC
From: "jimmiefender@bellsouth.net" <jimmiedee@bellsouth.net>
Message-ID: <blpWf.1155$z7.1144@bignews3.bellsouth.net>
Source record: 61998

"Chris W" <1qazse4@cox.net> wrote in message
news:klDOf.29196$2c4.4569@dukeread11...
> Can someone tell me where I can find the housings for a 1n21 crystal
> detector diode so I can hook it to some coax and a directional coupler? I
> can't seem to fine one anywhere
>
> --
> Chris W
> KE5GIX
>
> Gift Giving Made Easy
> Get the gifts you want & give the gifts they want
> One stop wish list for any gift, from anywhere, for any occasion!
> http://thewishzone.com

Check with someone who specializes in microwave connectors, directional
couplers ....ect like NARDA for a detector.

3738. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 07:28:21 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <1h9k22ptgqkeddd6h07p3k2qe585pfpl0h@4ax.com>
Source record: 61999

On Tue, 28 Mar 2006 22:33:18 -0500, John Popelish <jpopelish@rica.net>
wrote:
>>>this current mismatch would cause the transformer to
>>>produce more or less voltage across the windings
>>
>> In fact, nothing of that sort happens - at least not by your
>> description. The ferrite is simply bulk resistance inserted into the
>> common mode path.
>
>Make that, "impedance (mostly inductive, if the ferrite is well suited
>to the frequency)" and I agree.

Hi John,

No, the principle of the impedance is overwhelmingly resistive, not
reactive. One core (#75) that snuggly fits over RG58, at about 10MHz,
exhibits 25 Ohms resistance to common mode current. My BalUn uses 50
such whose combination presents 1250 Ohms resistance. This value
varies over frequency, but easily finds a 1000:50 ratio over the
entire MF/HF Ham spectrum.

I also have two engineering samples boxes full of various material
types and geometries and have measured them all. Some exhibit
reactance, but are vastly overwhelmed by their intrinsic resistance.

>> That is why common mode current is suppressed. The
>> same thing occurs in the coiled transmission line choke, but the
>> resistance is replaced by reactance. Again, common mode current is
>> snubbed by encountering this too.
>
>I agree with this, except that the purpose of the ferrite is to
>increase the common mode inductance of the section of coax passing
>through it, not add resistance. Some resistance is inevitable,
>because no ferrite is lossless, but the intention is for inductance.

Quite the contrary. Inductance, or more properly to the application,
reactance, may come as a consequence of these cores, but that is
really just a minor component to the vastly greater resistance.

>> The transformer property is in the isolation of the balanced circuit
>> from the unbalanced circuit through this resistive characteristic.
>
>Try transmitting through such a resistance and you are going to lose a
>lot of your power.

That power, actually current, was forced into a common mode because of one of several problems:
1. Massive imbalance in the radiator design,
2. Massive catastrophe with the radiator.

If you are destined to "lose a lot of power" into such resistance, you have far greater problems you are ignoring. However, let's return to this "loss of a lot of power." You have an antenna with a nominal 50 Ohm load resistance (presumably balanced to the common). You have a common mode choke with 1000 Ohms resistance in parallel (to the common of the common mode). Now, why would the power choose the path of 10 to 40 times more resistance to invest its calories in?

I will be generous and pour 1.5KW into a balanced 50 Ohm load to develop 275V that is also across the 1000 Ohms of the BalUn. 76W into 50 beads. Now this verges on serious power for this load I will admit, but it also presumes key-down conditions which would only be found for RTTY or SSTV. By my bench measurements, I figure that the core's can tolerate as much power as the bulk equivalent carbon composition resistor - or least this is my rule of thumb. This means about 1 or 2W per bead to offer enough heat to cause pain, but perhaps not enough to blister. This is another benchmark from my days in the Navy.

I once asked an ET Chief how much heat a transistor could tolerate. He said
"If you can hold onto it and count to 10, it's not too much."

I've been blistered by TO-5 cans with just a casual brush and they still filled their design mission.
>
>> You are missing one path. The two from the source in the form of the
>> inner shield of the coax, and the center conductor, and the one from
>> the load in the form of the outer shield of the coax (same shield, but
>> isolated circuits).
>
>I can't parse this. There are two metal conductors entering the
>choke, and two exiting it. All currents pass through those 4 conductors.

Your count is four terminals (not conductors), there are six. You need to come to terms with this shortfall in your count as it explains the utility and design of BalUns.

>> Further, there is no flux linkage of the two
>> conductors coming from the source. Their magnetic lines never break
>> the cores,
>
>I think you mean by this that a normal unbalanced signal in a coax has
>no magnetic field external to the shield. It is all between the
>center conductor and the shield. And I agree that this is what you
>are trying to accomplish by adding this two conductor choke between
>the coax and the balanced antenna. Without it, there would be some
>magnetic field from a net (uncanceled) current and voltage on the

>outside of the shield that would cause the coax to radiate. And the
>voltages and currents fed to the balanced antenna would not be equal
>and opposite (balanced) but somewhat unbalanced. There would also be
>non equal currents in the center conductor and shield. I think we
>agree on all that, but have a different picture of how a choke balun
>corrects these problems.

That is apparent.

>> whereas the common mode current does break the core which
>> thus inserts the resistance of the ferrite.
>
>The common mode current causes flux in the core, and the conductors
>passing through that flux produce a voltage proportional to the rate
>of change of that flux, just as the conductor passing through any
>inductor would.

This "rate of change" is spurious, call it frequency dependant, but
then frequency dependency is neither here nor there at this moment.
More to the matter trying to turn this BalUn into a power transformer
is doomed in this analysis as it has absolutely no impact to
>correct
>most of the unbalanced to balanced coupling.

73's
Richard Clark, KB7QHC

3739. transistor/diode-based MIXER help!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 08:09:21 UTC
From: mazerom <electromagnetic377@yahoo.com>
Message-ID: <1143619761.192970.130250@g10g2000cwb.googlegroups.com>
Source record: 62000

i have 2 inputs with frequencies in the 450khz ranges.i need a
differnce output.
any design circuits for either transistor or diode based mixer?thanks

3740. Re: transistor/diode-based MIXER help!

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 11:38:08 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <AkuWf.11262$VL2.8799@trnddc04>
Source record: 62001

"mazerom" <electromagnetic377@yahoo.com> wrote in message
news:1143619761.192970.130250@g10g2000cwb.googlegroups.com...
>i have 2 inputs with frequencies in the 450khz ranges.i need a
> differnce output.
> any design circuits for either transistor or diode based mixer?thanks
>

Hi Mazerom

have you looked at Mini Circuits's application notes on mixers?

http://www.minicircuits.com/appnote/mixer1-2.pdf

Jerry

3741. Crossed Field Antenna Performance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 13:13:52 UTC
From: Richard Fry <rfry@adams.net>
Message-ID: <442a874b_1@newsfeed.slurp.net>
Source record: 62002

Below is a link to a comprehensive, 18-page paper delivered at the IEEE Broadcast Symposium last September with an extensive mathematical analysis and measured data from broadcast stations using CF antennas.

Some conclusions:

- A CF antenna is not quite as good in terms of gain and bandwidth as a reference monopole of the same electrical height.
- CF antenna performance increases as height and/or top loading increases, and for the same reasons it does so for a standard, short monopole.
- Given its performance, and the complexity of the installing/adjusting a CF antenna, a short monopole over a good ground plane could be a better choice.

http://www.fi.uba.ar/materias/6654/download/CFAantenna.pdf

RF

3742. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 13:34:37 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <N1wWf.39904$bn3.25688@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62003

Cecil,

I take your cryptic message to mean there was something wrong with the files I sent you. If that is your message then I don't understand.

I just went back and checked the EZ files. The coil consists of 25 turns over a six-inch length. How does that calculate out to ten turns per foot?

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I have sent the files to you, as requested.
>> It is always possible that I made a mistake in the modeling. If so, I
>> am confident the entire world will know in short order. 8-)
>
>
> Ten turns per foot is not what I had in mind for modeling my 4TPI
> 75m bugcatcher coil and the EZNEC guideline violations are a little
> discouraging. I have an EZNEC file for a omnidirectional 20 dBi
> antenna if you would like to have it. :-)

3743. Re: Crossed Field Antenna Performance

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 14:30:09 UTC
From: Dan Richardson <k6mhe>
Message-ID: <oe6l225i8395rqvf29mjqta73babksqj1o@4ax.com>
Source record: 62004

OH GAWD, NOT AGAIN!

On Wed, 29 Mar 2006 07:13:52 -0600, "Richard Fry" <rfry@adams.net>
wrote:

>Below is a link to a comprehensive, 18-page paper delivered at the IEEE
>Broadcast Symposium last September with an extensive mathematical analysis
>and measured data from broadcast stations using CF antennas.
>
>Some conclusions:
>
>- A CF antenna is not quite as good in terms of gain and bandwidth as a
>reference monopole of the same electrical height.
>- CF antenna performance increases as height and/or top loading increases,
>and for the same reasons it does so for a standard, short monopole.
>- Given its performance, and the complexity of the installing/adjusting a CF
>antenna, a short monopole over a good ground plane could be a better choice.
>
> http://www.fi.uba.ar/materias/6654/download/CFAantenna.pdf
>
>RF

3744. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 15:01:57 UTC
From: richardharrison@webtv.net
Message-ID: <25559-442AA165-38@storefull-3253.bay.webtv.net>
Source record: 62006

Hohn Popelish wrote:
"I guess this depends on the official definition of "slow wave."

My dictionary of electronics defines "slow-wave circuit" as: "-A microwave circuit in which the phase velocity of the waves is considerably below the speed of light. Such waves are used in traveling-wave tubes."

William I. Orr wrote on page 6.11 of the 22nd edition of the "Radio Handbook":
"Spaced closely around the (TWT) beam is a circuit, in this case a helix of tightly wound wire, capable of propagating a slow wave. The r-f energy travels along the wire at the velocity of light but, because of the helical path, the energy propagates along the length of the tube at a considerably lower velocity than is determined primarily by the pitch of the helix." (I think Mr. Orr probably wrote: that is determined primarily by the pitch of the helix.)

I`ve seen several mentions of "slow wave" in the literature and it always meant slower than the speed of light. There is no need to limit the definition to microwaves as the coil slows the velocity across because the wave is guided by the wire wrapped around its form. The wire is longer than the coil form.

Best regards, Richard Harrison, KB5WZI

3745. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 15:04:13 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <NIxWf.6656$4L1.5571@newssvr11.news.prodigy.com>
Source record: 62005

Gene Fuller wrote:
> Cecil,
> I just went back and checked the EZ files. The coil consists of 25 turns
> over a six-inch length. How does that calculate out to ten turns per foot?

First, thanks for sending me those files. I have never been
able to generate a 4 TPI coil in EZNEC because of proximity
guidelines. How did you accomplish that?

Second, I thought EZNEC stored the design specifications
for the latest created coil and I was mistaken about that.
EZNEC must default to ten turns per foot.

However, the antenna is almost 12 feet tall, not the agreed
upon 8 feet. It would take a bigger coil to resonate an
8 foot antenna at 4 MHz. Bigger coil = more delay.

And I'm not encouraged by those numerous EZNEC guideline
violations. Download http://www.qsl.net/w5dxp/SUPRGAIN.EZ
for an omni-directional 20 dBi gain antenna that violates
the EZNEC guidelines. Incidentally, there seems to be a bug
in EZNEC. When I try to save the segmentation errors to a
file, EZNEC barfs and closes. I can't get a look at all
the errors so I don't know what they are.

I will continue to tweak the files, like adding enough coil
to bring an 8 foot antenna to resonance.
--
73, Cecil http://www.qsl.net/w5dxp

3746. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 15:45:05 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <wtednaJwNsqBN7fZnZ2dnUVZ_s6dnZ2d@adelphia.com>
Source record: 62007

Richard Clark wrote:
> On Tue, 28 Mar 2006 22:33:18 -0500, John Popelish <jpopelish@rica.net>
> wrote:
(snip)
>>Make that, "impedance (mostly inductive, if the ferrite is well suited
>>to the frequency)" and I agree.
>
>
> Hi John,
>
> No, the principle of the impedance is overwhelmingly resistive, not
> reactive. One core (#75) that snuggly fits over RG58, at about 10MHz,
> exhibits 25 Ohms resistance to common mode current.

Yep. Type 75 operated at 10MHz is very lossy.

> My BalUn uses 50
> such whose combination presents 1250 Ohms resistance. This value
> varies over frequency, but easily finds a 1000:50 ratio over the
> entire MF/HF Ham spectrum.

Thank you for some specific facts. I had no idea that you were using
a ferrite whose permeability falls to half the low frequency value
(about 5000 at 200kHz) at only 700kHz and is not recommended for flux
coupling applications higher than about 750kHz. It also has a very
low bulk resistivity of 300 ohm cm. At 3 MHz, its permeability is
only about 150 (and plunging).

Type 43 material has a permeability of about 500 at 3 MHz and falling
much more slowly.

> I also have two engineering samples boxes full of various material
> types and geometries and have measured them all. Some exhibit
> reactance, but are vastly overwhelmed by their intrinsic resistance.

(snip)
>>I agree with this, except that the purpose of the ferrite is to
>>increase the common mode inductance of the section of coax passing
>>through it, not add resistance. Some resistance is inevitable,
>>because no ferrite is lossless, but the intention is for inductance.
>
> Quite the contrary. Inductance, or more properly to the application,
> reactance, may come as a consequence of these cores, but that is
> really just a minor component to the vastly greater resistance.

If the cores don't have relative hi permeability (causing mutual
inductance in the two conductors passing through) they can't produce
any impedance in series with the common mode current. That is also
transformed over to the two conductors by mutual inductance (as a
loaded secondary reflected to those conductors as a primary).

>>Try transmitting through such a resistance and you are going to lose a
>>lot of your power.
>
> That power, actually current, was forced into a common mode because of
> one of several problems:
> 1. Massive imbalance in the radiator design,
> 2. Massive catastrophe with the radiator.
>
> If you are destined to "lose a lot of power" into such resistance, you
> have far greater problems you are ignoring. However, let's return to
> this "loss of a lot of power." You have an antenna with a nominal 50
> Ohm load resistance (presumably balanced to the common). You have a
> common mode choke with 1000 Ohms resistance in parallel (to the common
> of the common mode). Now, why would the power choose the path of 10
> to 40 times more resistance to invest its calories in?
>
> I will be generous and pour 1.5KW into a balanced 50 Ohm load to
> develop 275V that is also across the 1000 Ohms of the BalUn. 76W into
> 50 beads. Now this verges on serious power for this load I will
> admit, but it also presumes key-down conditions which would only be
> found for RTTY or SSTV. By my bench measurements, I figure that the
> core's can tolerate as much power as the bulk equivalent carbon
> composition resistor - or least this is my rule of thumb. This means
> about 1 or 2W per bead to offer enough heat to cause pain, but perhaps
> not enough to blister. This is another benchmark from my days in the
> Navy.

If the radiator is perfectly balanced, the impedance of the ferrite
(transformed to the primary side) sees half of the voltage that is
between the center conductor and the shield. So if the coax carries
275 volts, half of that or about 1378 volts appears across the bead
bead common mode impedance. So a 1000 ohm common mode choke limits
the common mode current to 138/1000 = 138 mA. And if that impedance
is dominated by resistance, the beads will absorb 138*.138=19 watts.
50 beads will stand that indefinitely.

I don't think the O.P.'s balun has 50 beads, though.

>>>You are missing one path. The two from the source in the form of the
>>>inner shield of the coax, and the center conductor, and the one from
>>>the load in the form of the outer shield of the coax (same shield, but
>>>isolated circuits).
>>
>>I can't parse this. There are two metal conductors entering the
>>choke, and two exiting it. All currents pass through those 4 conductors.
>

>
> Your count is four terminals (not conductors), there are six. You
> need to come to terms with this shortfall in your count as it explains
> the utility and design of BalUns.

If the other two are the ends of the loss resistance, they can be
transformed back to the two conductors.
(snip)

>>The common mode current causes flux in the core, and the conductors
>>passing through that flux produce a voltage proportional to the rate
>>of change of that flux, just as the conductor passing through any
>>inductor would.
>
>
> This "rate of change" is spurious, call it frequency dependant, but
> then frequency dependency is neither here nor there at this moment.
> More to the matter trying to turn this BalUn into a power transformer
> is doomed in this analysis as it has absolutely no impact to

It may not be the approach you are familiar with, but I think it is
valid. The transformer just has a lot of core loss, if you use a
ferrite optimized for a much lower frequency. And that loss shows up
as if it were a resistor connected across the ends of the two
windings. If a low loss ferrite (at the operating frequency) is used,
then the impedance across the windings is dominated by inductance, as
one normally expects with a transformer. But the analysis handles the
whole range of cases.

3747. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 15:50:36 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <wtednd1wNsr6NrfZnZ2dnUVZ_s6dnZ2d@adelphia.com>
Source record: 62008

Richard Harrison wrote:
> Hohn Popelish wrote:
> "I guess this depends on the official definition of "slow wave."
>
> My dictionary of electronics defines "slow-wave circuit" as: "-A
> microwave circuit in which the phase velocity of the waves is
> considerably below the speed of light. Such waves are used in
> traveling-wave tubes."
>
> William I. Orr wrote on page 6.11 of the 22nd edition of the "Radio
> Handbook":
> "Spaced closely around the (TWT) beam is a circuit, in this case a helix
> of tightly wound wire, capable of propagating a slow wave. The r-f
> energy travels along the wire at the velocity of light but, because of
> the helical path, the energy propagates along the length of the tube at
> a considerably lower velocity than is determined primarily by the pitch
> of the helix." (I think Mr. Orr probably wrote: that is determined
> primarily by the pitch of the helix.)
>
> I`ve seen several mentions of "slow wave" in the literature and it
> always meant slower than the speed of light. There is no need to limit
> the definition to microwaves as the coil slows the velocity across
> because the wave is guided by the wire wrapped around its form. The wire
> is longer than the coil form.

It seems that these references are not particularly concerned with the dimensions of the coil with respect to wavelength, or with the mode of propagation within the coil. I suspect that the term has different meanings to different specialties.

3748. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 16:31:56 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <0EyWf.60552$H71.10184@newssvr13.news.prodigy.com>
Source record: 62009

Gene Fuller wrote:
> I take your cryptic message to mean there was something wrong with the
> files I sent you. If that is your message then I don't understand.

Your files contain multiple geometry proximity errors. Here is
what EZNEC says about your file:

http://www.qsl.net/w5dxp/ezerror.GIF

I started to print out the error file until I discovered it
is 142 pages long.

It seems to be impossible to model 4 MHz, 4 TPI coils in
EZNEC without multitudes of proximity errors. Proximity
errors result in gross errors in EZNEC results.

I'm sorry, Gene, but the results of your simulation cannot
be trusted.
--
73, Cecil http://www.qsl.net/w5dxp

3749. Re: highwind,rohn25,stayerect???

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 16:47:54 UTC
From: AC7PN <brunius@rockisland.com>
Message-ID: <1143650873.948410.274640@i40g2000cwc.googlegroups.com>
Source record: 62010

I have a 70ft Rohn tower with a 15 ft mast. On the mast at +8ft above the tower head is a 9 element 2 meter beam, at +12 ft is a 5 element 20 meter beam (big) and at the top of the mast (+15 ft) is a discone. I have three sets of guys on this setup but they are not able to be set out as far from the base of the tower as is specified by Rohn because of the terrain. One set is only 18ft from the base of the tower.

We are in a very wind environment here in the Pacific NW. On the top of Scott Hill we often get wind storms in the winter with gusts to 70knots. This setup shelled out a Yaesu G-1000SDX rotor in one winter. This caused a free wheeling antenna that wound the coax around the tower like a vine on a tree.

Bottom line, the tower has been up for 5 years and there is no sign of trouble. This was used tower by the way. It had been installed in it's former application for 20 years.

3750. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 17:23:22 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <eozWf.648419$qk4.359938@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62011

Cecil,

As you know, generating the helix coils and using them are two separate things. I have only EZNEC version 3, which does not support automatic helix generation. However, there does not appear to be any reason why helices cannot be used in EZNEC version 3. That is what I did. I copied your wires, edited them, and re-input into EZNEC.

As for the height, you asked for an 8 foot whip. I adjusted my model until I got to a 10 foot whip. As I stated, I quit at that point. If you choose to further refine the model, be my guest. I doubt that you will find the magic wormhole into the parallel universe where everything is radically different.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> Cecil,
>> I just went back and checked the EZ files. The coil consists of 25
>> turns over a six-inch length. How does that calculate out to ten turns
>> per foot?
>
>
> First, thanks for sending me those files. I have never been
> able to generate a 4 TPI coil in EZNEC because of proximity
> guidelines. How did you accomplish that?
>
> Second, I thought EZNEC stored the design specifications
> for the latest created coil and I was mistaken about that.
> EZNEC must default to ten turns per foot.
>
> However, the antenna is almost 12 feet tall, not the agreed
> upon 8 feet. It would take a bigger coil to resonate an
> 8 foot antenna at 4 MHz. Bigger coil = more delay.
>
> And I'm not encouraged by those numerous EZNEC guideline
> violations. Download http://www.qsl.net/w5dxp/SUPRGAIN.EZ
> for an omni-directional 20 dBi gain antenna that violates
> the EZNEC guidelines. Incidentally, there seems to be a bug
> in EZNEC. When I try to save the segmentation errors to a
> file, EZNEC barfs and closes. I can't get a look at all

> the errors so I don't know what they are.
>
> I will continue to tweak the files, like adding enough coil
> to bring an 8 foot antenna to resonance.

3751. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 17:36:23 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <o0bl22dem9dpsvvsi3graqvktjhdk9fm5c@4ax.com>
Source record: 62013

On Wed, 29 Mar 2006 10:45:05 -0500, John Popelish <jpopelish@rica.net>
wrote:

>It may not be the approach you are familiar with, but I think it is
>valid. The transformer just has a lot of core loss, if you use a
>ferrite optimized for a much lower frequency. And that loss shows up
>as if it were a resistor connected across the ends of the two
>windings. If a low loss ferrite (at the operating frequency) is used,
>then the impedance across the windings is dominated by inductance, as
>one normally expects with a transformer. But the analysis handles the
>whole range of cases.

Hi John,

Through these last comments, and those that go before, you have
entirely missed the boat of both the dynamics involved (this is not a
magnetic circuit being described, and there are NO magnetic lines
broken in a typical circuit in a balanced configuration), and the
topology. Specifically to this last, you still do not seem to
comprehend that a coax has three conductors and is a six terminal
device.

Roy has also commented to these issues and I think you should review
his correspondence and respond to him.

73's
Richard Clark, KB7QHC

3752. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 17:36:56 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <YAzWf.40495$bn3.482@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62012

Cecil,

I did what you "challenged", with the exception of the exact whip length. (And the version I sent had a total height of 11 feet 9 inches, which is not absurdly unreasonable.)

I have to say I am surprised that it took you more than 24 hours to misinterpret what I sent (10 turns per foot) and then to blame the tools.

I don't see any of the errors on my computer.

There is little point of carrying this any further. You already stated that the results did not make technical sense to you and that perhaps EZNEC cannot be used for this task. I cannot repair your "technical sense", and I have no control over the capabilities of EZNEC.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> I take your cryptic message to mean there was something wrong with the
>> files I sent you. If that is your message then I don't understand.
>
>
> Your files contain multiple geometry proximity errors. Here is
> what EZNEC says about your file:
>
> http://www.qsl.net/w5dxp/ezerror.GIF
>
> I started to print out the error file until I discovered it
> is 142 pages long.
>
> It seems to be impossible to model 4 MHz, 4 TPI coils in
> EZNEC without multitudes of proximity errors. Proximity
> errors result in gross errors in EZNEC results.
>
> I'm sorry, Gene, but the results of your simulation cannot
> be trusted.

3753. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 17:49:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <jmhl22lk04mkq86votfn2mik1s9bm3s5k5@4ax.com>
Source record: 62014

On Wed, 29 Mar 2006 17:01:51 GMT, rocky <mar.sv@mars.com> wrote:

> To sort of sum things up, then what should I use for a choke balun on
>75 meters, 77, 73 or 43 mix? More the better? I read the W2DU article
>and he used 73, but I thought 77 may be better?

Hi OM,

More is better? What do you seek to achieve that is not already
answered by Walt's article? Didn't he specify which type?

#64 material is going to offer about 3 Ohms per bead;
#43 material is going to offer about 8 Ohms per bead;
#73 & 77 material is going to offer about 18 Ohms per bead;
#75 material is going to show offer 28 Ohms per bead.

If you are running power into a matched load, you may want more of the
lower resistance beads. If you are running barefoot, fewer more
resistive beads will work.

Or you could do it the old-fashion way by looping your coax at the
drive point.

73's
Richard Clark, KB7QHC

3754. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 18:07:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <C1AWf.53808$F_3.9115@newssvr29.news.prodigy.net>
Source record: 62015

Gene Fuller wrote:
> As you know, generating the helix coils and using them are two separate
> things. I have only EZNEC version 3, which does not support automatic
> helix generation. However, there does not appear to be any reason why
> helices cannot be used in EZNEC version 3. That is what I did. I copied
> your wires, edited them, and re-input into EZNEC.

That probably explains everything. Version 4, with the helix
generation option, does a geometry check. The geometry of your
coil is unacceptable to Version 4 of EZNEC.

> As for the height, you asked for an 8 foot whip. I adjusted my model
> until I got to a 10 foot whip.

Actually, you stopped at 11.775 ft., ~12 feet as I stated earlier.
It won't do any good to keep going. The coil you generated is
unacceptable to EZNEC 4.0.

But thanks for your effort. I learned something about EZNEC.
--
73, Cecil http://www.qsl.net/w5dxp

3755. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 18:19:11 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122ljt44dilsqb2@corp.supernews.com>
Source record: 62016

John Popelish wrote:
> . . .
> It may not be the approach you are familiar with, but I think it is
> valid. The transformer just has a lot of core loss, if you use a
> ferrite optimized for a much lower frequency. And that loss shows up as
> if it were a resistor connected across the ends of the two windings. If
> a low loss ferrite (at the operating frequency) is used, then the
> impedance across the windings is dominated by inductance, as one
> normally expects with a transformer. But the analysis handles the whole
> range of cases.

Broadband transformers, which can operate well over several decades of frequency, commonly use ferrite cores which are essentially resistive over most of the operating frequency range. The sign of the impedance is unimportant to the transformer's operation; all that's necessary is that its magnitude be adequately high over the operating range (and of course that the core's permeability be adequately high). The wide band high impedance requirement is virtually impossible to meet with an inductive core whose impedance is approximately proportional to frequency, but easily done with cores whose impedance is essentially resistive.

Roy Lewallen, W7EL

3756. Re: Room Cap Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 20:16:10 UTC
From: Ian <rapids@cogeco.ca>
Message-ID: <ZVBWf.5620$Hk1.1448@read1.cgocable.net>
Source record: 62017

Hi,
Does anyone have any experience with or knowledge of Room Cap Antennas.

Ian
VA3SOF

3757. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 20:21:35 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <u5ql2295k5q5ta2oroiuo82vn1olbu2f5t@4ax.com>
Source record: 62018

On Wed, 29 Mar 2006 18:50:04 GMT, rocky <mar.sv@mars.com> wrote:

>I run up to a KW, dipole and could be using an antenna tuner to stretch
>the bandwidth. I was just thinking if it could be made even more
>effective by using other bead material. Looks like #75 offers the best
>attenuation at 75 M. but if I am getting this right, it will heat up
>more under high power and off resonance.

Hi OM,

Think of the beads as series 1W resistors. Ask yourself how much of a common mode load they will present to the antenna "as a source" (this means that the dipole will look like a KW source with complex impedance).

You then have to judge the potential that source will present in Common Mode to the beads. Elsewhere in this thread I've done a simplified analysis that suggests 50 #75 beads will get a tad hot under matched conditions because they are dissipating roughly 1.5W each. "Hot" is of little consequence until we shatter the ceramic because of thermal stress (the sintered product contains bulk irregularities). That stress could be arguably applied through a rain drop hitting a bead. Then we get into new issues of balance and symmetry because one part of the bead is cooler than the other. ;-)

If, instead for this matched load, you replace the 50 #75 beads with 80 #73 or #77 beads; then you have roughly the same total resistance, but the heat dissipation (still 1W suggested load for each) is spread out more. Again, moving off resonance demands another analysis.

73's
Richard Clark, KB7QHC

3758. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 20:36:08 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <9JWdndYxl_DPc7fZRVn-gA@adelphia.com>
Source record: 62019

Richard Clark wrote:
> On Wed, 29 Mar 2006 10:45:05 -0500, John Popelish <jpopelish@rica.net>
> wrote:
>
>
>>It may not be the approach you are familiar with, but I think it is
>>valid. The transformer just has a lot of core loss, if you use a
>>ferrite optimized for a much lower frequency. And that loss shows up
>>as if it were a resistor connected across the ends of the two
>>windings. If a low loss ferrite (at the operating frequency) is used,
>>then the impedance across the windings is dominated by inductance, as
>>one normally expects with a transformer. But the analysis handles the
>>whole range of cases.
>
>
> Hi John,
>
> Through these last comments, and those that go before, you have
> entirely missed the boat of both the dynamics involved (this is not a
> magnetic circuit being described, and there are NO magnetic lines
> broken in a typical circuit in a balanced configuration), and the
> topology. Specifically to this last, you still do not seem to
> comprehend that a coax has three conductors and is a six terminal
> device.

I appreciate you taking the time and effort to try to straighten me
out on this, but if there is no magnetic lines broken (whatever that
means) why use a magnetic core? Why wouldn't disks of carbon work
just as well. They are certainly resistive.

3759. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 21:26:26 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122lus5kvup9da5@corp.supernews.com>
Source record: 62020

John Popelish wrote:
> . . .
> I appreciate you taking the time and effort to try to straighten me out
> on this, but if there is no magnetic lines broken (whatever that means)
> why use a magnetic core? Why wouldn't disks of carbon work just as
> well. They are certainly resistive.

But resistive impedance isn't the only characteristic of ferrite. Disks of carbon won't work because they have a relative permeability of one.

Fair-Rite type 73 ferrite has a Q of 1 (R = X) at about 3 MHz, and is essentially resistive above that; it's a "low frequency" ferrite. But its relative permeability is 700 at 10 MHz and 70 at 100 MHz. (Note that the permeability is a complex quantity, and that the permeability is mostly imaginary, hence the impedance resistive, at the higher frequencies.) Carbon has a relative permeability of one at all frequencies. The impedance of a type 73 ferrite core picked at random from the Fair-Rite data shows an impedance of 23 ohms at 3 MHz, 37 at 10, 51 at 100, and 49 at 200 MHz. Try making a carbon disk that'll give you that impedance. And if you make your baluns with multiple turns on a single core as I do, you'll have much poorer coupling between turns on a carbon core, than on ferrite.

You'll learn a lot by reading the information in the Fair-Rite catalog, available at their web site. Good, professionally written information on EMI suppression is useful also. But I don't recommend looking to amateur publications and web sites for information on ferrites -- too many people share the same misconceptions you do, and pass them along without really understanding how transformers work and the properties of ferrites. Actually, a large number of engineers share those misconceptions, too. It's often one of the first things I have to explain to the engineers in my consulting work.

Roy Lewallen, W7EL

3760. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 21:49:06 UTC
From: w8ji@akorn.net
Message-ID: <1143668946.053709.253300@e56g2000cwe.googlegroups.com>
Source record: 62021

Gene Fuller wrote:
> I did what you "challenged", with the exception of the exact whip
> length. (And the version I sent had a total height of 11 feet 9 inches,
> which is not absurdly unreasonable.)
>
> I have to say I am surprised that it took you more than 24 hours to
> misinterpret what I sent (10 turns per foot) and then to blame the tools.
>
> I don't see any of the errors on my computer.
>
> There is little point of carrying this any further. You already stated
> that the results did not make technical sense to you and that perhaps
> EZNEC cannot be used for this task. I cannot repair your "technical
> sense", and I have no control over the capabilities of EZNEC.

Gene,

Send me the file please. Don't use my akorn newsgeroup addres. I do not
check it.

Use my callsign at contesting.com

73 Tom

3761. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:23:15 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <nNDWf.43283$_S7.33646@newssvr14.news.prodigy.com>
Source record: 62023

w8ji@akorn.net wrote:
> Send me the file please. Don't use my akorn newsgeroup addres. I do not
> check it.

Here's just about all you need to know about Gene's EZNEC file:

http://www.qsl.net/w5dxp/ezerror.GIF

EZNEC doesn't like 4 TPI coils at 4 MHz.
--
73, Cecil http://www.qsl.net/w5dxp

3762. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:28:59 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <p5ul22h2hdpk93p0deqspn3jpavc40he9k@4ax.com>
Source record: 62026

On Wed, 29 Mar 2006 15:36:08 -0500, John Popelish <jpopelish@rica.net>
wrote:

>I appreciate you taking the time and effort to try to straighten me
>out on this, but if there is no magnetic lines broken (whatever that
>means) why use a magnetic core? Why wouldn't disks of carbon work
>just as well. They are certainly resistive.

Hi John,

Breaking magnetic lines (flux) is a commonplace of fields, motors, and generators. A single wire that passes through a bead, torus, or core will build a magnetic field concentrated within that structure when the circuit is completed outside of it. The flux lines of half the loop will penetrate the core to reach the other half of the loop. The core breaks the magnetic line of flux. The dissymmetry of penetration builds a magnetic field in the core.

However, when the complete current loop is within the same structure, the flux lines do not fulfill that same function. The flux lines that do emerge from the tightly bound wires can be said to penetrate the torus, but here the symmetry creates bucking fields, the net effect is as though there was no core at all (except to add capacitance).

Both models attempt to stimulate a current within the toroid, the common mode of the single wire model above is lossy, the differential mode of the twin line model that followed sees nothing. Superpose these two for the coaxial solution.

To put this to a test. Load up your rig, through a SWR meter to a dummy load using two short connection wires (this will undoubtedly require adapters and such to break out both paths). You should note a 1:1 indication. Place two #75 beads on ONE wire. You should note a 2:1 indication. You have just inserted 40 to 60 Ohms of additional resistance into the circuit. Now, move the same two beads to encompass BOTH wires. This should return the SWR meter to a 1:1 indication.

73's
Richard Clark, KB7QHC

3763. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:29:13 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <B8CdnTiwwppOlbbZnZ2dnUVZ_t-dnZ2d@adelphia.com>
Source record: 62022

rocky wrote:
> To sort of sum things up, then what should I use for a choke balun on
> 75 meters, 77, 73 or 43 mix? More the better? I read the W2DU article
> and he used 73, but I thought 77 may be better?

If you are going to have to go out and buy the cores, type 43 (and its competitors) is way more common and cheap than any of the others. It is also readily available in long form toroids called shield beads.

For instance, Digikey sells the Steward version of type 43 (called type 28) beads part number 28B1122-100, with a 13.7mm hole and 28.6mm long. This part produces about 60 ohms per bead at 4 MHz and costs $20 for 10 pieces.
http://www.steward.com/

What diameter coax do you want to use a choke BaLun on? Generally the smaller hole size, the more impedance you get out of a given length core.

3764. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:30:54 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <B8CdnTuwwpqqlLbZnZ2dnUVZ_t-dnZ2d@adelphia.com>
Source record: 62024

Richard Clark wrote:
(snip)
> #64 material is going to offer about 3 Ohms per bead;
> #43 material is going to offer about 8 Ohms per bead;
> #73 & 77 material is going to offer about 18 Ohms per bead;
> #75 material is going to show offer 28 Ohms per bead.
(snip)

What dimension cores produce these impedances at 75 meters?

3765. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:32:25 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <B8CdnTqwwpoOlLbZnZ2dnUVZ_t-dnZ2d@adelphia.com>
Source record: 62025

Roy Lewallen wrote:

> Broadband transformers, which can operate well over several decades of
> frequency, commonly use ferrite cores which are essentially resistive
> over most of the operating frequency range. The sign of the impedance is
> unimportant to the transformer's operation; all that's necessary is that
> its magnitude be adequately high over the operating range (and of course
> that the core's permeability be adequately high). The wide band high
> impedance requirement is virtually impossible to meet with an inductive
> core whose impedance is approximately proportional to frequency, but
> easily done with cores whose impedance is essentially resistive.

As long as the impedance is high enough, what is the need for it to be
constant (or even nearly so) over a useful frequency range?

3766. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:34:16 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <3o2m229q3ijqnvejsrnsh0oufln7vjroom@4ax.com>
Source record: 62029

On Wed, 29 Mar 2006 17:30:54 -0500, John Popelish <jpopelish@rica.net>
wrote:

>Richard Clark wrote:
>(snip)
>> #64 material is going to offer about 3 Ohms per bead;
>> #43 material is going to offer about 8 Ohms per bead;
>> #73 & 77 material is going to offer about 18 Ohms per bead;
>> #75 material is going to show offer 28 Ohms per bead.
>(snip)
>
>What dimension cores produce these impedances at 75 meters?

Hi John,

It is called a 101 sized bead:
.138" OD
.051" ID
.128" high

73's
Richard Clark, KB7QHC

3767. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:34:43 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <7YDWf.43284$_S7.39291@newssvr14.news.prodigy.com>
Source record: 62028

Richard Clark wrote:
> Breaking magnetic lines (flux) is a commonplace ...

If magnetic lines can be broken, doesn't that imply
the existence of magnetic monopoles which have never
been found to exist in reality? :-)
--
73, Cecil http://www.qsl.net/w5dxp

3768. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:36:47 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <3_DWf.43286$_S7.14799@newssvr14.news.prodigy.com>
Source record: 62030

John Popelish wrote:
>> You'll learn a lot by reading the information in the Fair-Rite
>> catalog, available at their web site.
>
> I have a hard copy right beside me, and refer to it often.

I also have a fold-up brochure from Amidon dated March 1991
and titled: "Iron-Powder and Ferrite Coil Forms".
--
73, Cecil http://www.qsl.net/w5dxp

3769. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:37:00 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <B8CdnTWwwpo4l7bZnZ2dnUVZ_t-dnZ2d@adelphia.com>
Source record: 62027

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> I appreciate you taking the time and effort to try to straighten me
>> out on this, but if there is no magnetic lines broken (whatever that
>> means) why use a magnetic core? Why wouldn't disks of carbon work
>> just as well. They are certainly resistive.
>
>
> But resistive impedance isn't the only characteristic of ferrite. Disks
> of carbon won't work because they have a relative permeability of one.

I know that. I wanted to see if Richard does.

(snip)

> You'll learn a lot by reading the information in the Fair-Rite catalog,
> available at their web site.
(snip)

I have a hard copy right beside me, and refer to it often.

3770. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:48:43 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ROqdneKPTbH7kLbZnZ2dnUVZ_t6dnZ2d@adelphia.com>
Source record: 62031

Richard Clark wrote:

> Hi John,
>
> Breaking magnetic lines (flux) is a commonplace of fields, motors, and
> generators. A single wire that passes through a bead, torus, or core
> will build a magnetic field concentrated within that structure when
> the circuit is completed outside of it. The flux lines of half the
> loop will penetrate the core to reach the other half of the loop. The
> core breaks the magnetic line of flux. The dissymmetry of penetration
> builds a magnetic field in the core.

I cannot picture what you are saying. I guess I need a picture. The
way I understand flux, is that, any current has flux wrapped around
it. Putting a core material around the current allows the flux to
increase in magnitude in proportion to the permeability of the material.

> However, when the complete current loop is within the same structure,
> the flux lines do not fulfill that same function.

The simplest way to say that is that two equal currents going in
opposite directions have magnetic fields that cancel well outside the
pair of conductors. It doesn't make a lot of difference if the two
currents are coaxial or side by side, as long as the flux path
surrounds both of them.

> The flux lines that
> do emerge from the tightly bound wires can be said to penetrate the
> torus, but here the symmetry creates bucking fields, the net effect is
> as though there was no core at all (except to add capacitance).

Since the magnetic fields from the two currents cancel (at sufficient
distance), there is no flux to enter a surrounding core. The only way
bucking takes place is if the two currents are side by side. Then
there is some flux leakage near the two current paths, but the fields
these create buck each other in the two halves of the core, so there
is only local flux fringing into and back out of the core.

> Both models attempt to stimulate a current within the toroid, the
> common mode of the single wire model above is lossy, the differential
> mode of the twin line model that followed sees nothing. Superpose
> these two for the coaxial solution.

As I understand common mode current, it is the net imbalance between
the current through the center conductor and the current through the
shield.

> To put this to a test. Load up your rig, through a SWR meter to a
> dummy load using two short connection wires (this will undoubtedly
> require adapters and such to break out both paths). You should note a
> 1:1 indication. Place two #75 beads on ONE wire. You should note a
> 2:1 indication. You have just inserted 40 to 60 Ohms of additional
> resistance into the circuit. Now, move the same two beads to
> encompass BOTH wires. This should return the SWR meter to a 1:1
> indication.

Yes, obvious to the casual observer. You can string beads all along a coax, and if it had no common mode current in it, this will make absolutely no difference in how the coax acts.

3771. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:50:28 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ROqdnR2PTbFTkLbZnZ2dnUVZ_t6dnZ2d@adelphia.com>
Source record: 62032

Richard Clark wrote:
> On Wed, 29 Mar 2006 17:30:54 -0500, John Popelish <jpopelish@rica.net>
> wrote:
>
>
>>Richard Clark wrote:
>>(snip)
>>
>>>>#64 material is going to offer about 3 Ohms per bead;
>>>>#43 material is going to offer about 8 Ohms per bead;
>>>>#73 & 77 material is going to offer about 18 Ohms per bead;
>>>>#75 material is going to show offer 28 Ohms per bead.
>>
>>(snip)
>>
>>What dimension cores produce these impedances at 75 meters?
>
>
> Hi John,
>
> It is called a 101 sized bead:
> .138" OD
> .051" ID
> .128" high

Are these what you recommend as coax choke balun beads? That is some
fine coax.

3772. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:53:56 UTC
From: richardharrison@webtv.net
Message-ID: <11783-442B1004-162@storefull-3254.bay.webtv.net>
Source record: 62035

John Popelish wrote:
"it seems that these references are not particularly concerned with dimensions of the coil with respect to wavelength, or to the mode of propagation within the coil.

OK. I gave an example of a traveling wave tube which uses a coil specifically to retard wave progress ao that an electron beam could keep up with a signal winding its way through the coil.Terman describes the Traveling Wave Tube (TWT) starting on page 678 of his 1955 edition of "Electronic and Radio Engineering".

Here is another version of how the TWT works. The TWT was developed to provide wideband gain, about 10 to 60 dB over 10% of the operating frequency or more, and produce a power output of one kilowatt, if needed.

The TWT consists of an electron gun similar to those used in CRTs, a wire helix, and a collector. The gun at one end of the helix produces a focused beam of electrons directed through the center of the helix. The helix is a uniform coil of wire used to slow down the forward progress of an RF signal fed into the gun-end of the helix inside a glass vacuum tube. Output is taken from the helix at the collector end of the helix. The collector and the helix are positively charged. The collector is the electrode which catches the spent electrons which have traveled through the length of the tube.

A magnetic field distributed along the length of the TWT is used to keep rhe electron beam from spreading during flight.

Transfer of power from the direct current of the electron beam to the RF signal is by velocity modulation of the beam into periodic bunches of electrons. these accelerating electron bunches generate a stronger signal along its path. Interaction between the electron beam and the helix is continuous and accumulative. Amplitude of the signal grows as it travels down the helix.

The axial wave velocity is fixed by the helix while the initial eleectron velocity (before modulation) is proportional to the positive potential on the helix and collector.

The signal to be amplified is fed to the end of the helix nearer the electron gun. This RF signal travels as a surface wave around the turns of the helix, toward the collector, at about the velocity of light. The forward or axial movement of the signal is slower, of course, because of the pitch and diameter of the helix. This forward movement of the wave is analogous to the travel of a finely threaded screw where many turns

are required to drive it into position. The signal wave generates an axial electric field which travels with it along the longitudinal axis of the helix. This velocity modulates (slows down and speeds up) the electrons of the beam current.

So, the wave traveling from one end of the coil towards the other is a "slow-wave" while the wave travelimg around the coil turns is only slightly slowed below the speed of light. This is how a coil works. Frequency and coil form matter but don`t change the basics.

Best regards, Richard Harrison, KB5WZI

3773. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:54:20 UTC
From: w8ji@akorn.net
Message-ID: <1143672860.856452.99770@i39g2000cwa.googlegroups.com>
Source record: 62033

John Popelish wrote:
> rocky wrote:
> > To sort of sum things up, then what should I use for a choke balun on
> > 75 meters, 77, 73 or 43 mix? More the better? I read the W2DU article
> > and he used 73, but I thought 77 may be better?
>
> If you are going to have to go out and buy the cores, type 43 (and its
> competitors) is way more common and cheap than any of the others. It
> is also readily available in long form toroids called shield beads.

You are going to get into trouble with the W2DU balun at high power levels or with high commonn mode voltages across the balun. Each bead suggested is only good for about 1/2 watt dissipation in open air during long duty cycle.

Also, a string of beads is a terribly inefficient use of ferrite materials. If you double the expense of the balun by doubling the number of beads, you only double the common mode impedance.

If you use a less resistive material with lower loss tangent and multiple turns through the core, you can greatly increase power capacity and choking impedance with much less increase in cost.

73 or 75 material beads are great in 50 ohm systems at modest power on higher frequencies when the common mode excitation is low, but I'd stay away from that method at kilowatt power levels especially if common mode exciting the shield is high in level or frequency is low.

For high stress applications a string of beads is terribly inefficient.

73 Tom

3774. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 22:59:38 UTC
From: w8ji@akorn.net
Message-ID: <1143673178.903749.286470@u72g2000cwu.googlegroups.com>
Source record: 62034

Cecil Moore wrote:
> w8ji@akorn.net wrote:
> > Send me the file please. Don't use my akorn newsgeroup addres. I do not
> > check it.
>
> Here's just about all you need to know about Gene's EZNEC file:
>
> http://www.qsl.net/w5dxp/ezerror.GIF
>
> EZNEC doesn't like 4 TPI coils at 4 MHz.
> --
> 73, Cecil http://www.qsl.net/w5dxp

Sorry Cecil, I was talking to John, and not you.

I prefer low distortion accurate information that has not been run
through a "Cecil Moore filter".

73 Tom

3775. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 23:48:42 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122m774edopn7d7@corp.supernews.com>
Source record: 62036

John Popelish wrote:
> Roy Lewallen wrote:
>
>> Broadband transformers, which can operate well over several decades of
>> frequency, commonly use ferrite cores which are essentially resistive
>> over most of the operating frequency range. The sign of the impedance
>> is unimportant to the transformer's operation; all that's necessary is
>> that its magnitude be adequately high over the operating range (and of
>> course that the core's permeability be adequately high). The wide band
>> high impedance requirement is virtually impossible to meet with an
>> inductive core whose impedance is approximately proportional to
>> frequency, but easily done with cores whose impedance is essentially
>> resistive.
>
> As long as the impedance is high enough, what is the need for it to be
> constant (or even nearly so) over a useful frequency range?

None.

Roy Lewallen, W7EL

3776. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 23:52:07 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122m7d7jlcrer5d@corp.supernews.com>
Source record: 62037

John Popelish wrote:
> . . .
> As I understand common mode current, it is the net imbalance between the
> current through the center conductor and the current through the shield.

If you consider the sum of the physically separate currents on the
inside and outside of the shield to be the current "through the shield",
that's correct. And it's equal to the current on the outside of the shield.

>. . .

Roy Lewallen, W7EL

3777. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-29 23:56:37 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <V8FWf.60649$H71.21613@newssvr13.news.prodigy.com>
Source record: 62038

w8ji@akorn.net wrote:
> Cecil Moore wrote:
>>EZNEC doesn't like 4 TPI coils at 4 MHz.

> Sorry Cecil, I was talking to John, and not you.

If you were talking to John and not me, you should have
done it over private email and not in a public forum. My
technical information is free - everyone can take it or
leave it.
--
73, Cecil http://www.qsl.net/w5dxp

3778. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:04:28 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <ggFWf.41449$bn3.34151@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62039

Cecil,

I have no idea what you did, but you screwed something up quite royally. There is no way that segment 3 is too close to segment 197.

I just ran a cut-down version in the EZNEC 4 demo, and I found no geometry errors. Yes, each segment length is too short, about 80% of the recommendation, but Roy indicated a couple of days ago that should not present a big problem. I cannot say much more about EZNEC, except that I did not see any problems.

The coil I modeled is very similar to the Texas Bugcatcher model 680 coil. (http://www.texasbugcatcher.com)

I don't own a Texas Bugcatcher coil, but I suspect they actually work more or less as advertised.

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> Send me the file please. Don't use my akorn newsgeroup addres. I do not
>> check it.
>
>
> Here's just about all you need to know about Gene's EZNEC file:
>
> http://www.qsl.net/w5dxp/ezerror.GIF
>
> EZNEC doesn't like 4 TPI coils at 4 MHz.

3779. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:17:35 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <n62dnQjx5rmkv7bZRVn-uA@adelphia.com>
Source record: 62040

w8ji@akorn.net wrote:
> John Popelish wrote:
>
>>rocky wrote:
>>
>>> To sort of sum things up, then what should I use for a choke balun on
>>>75 meters, 77, 73 or 43 mix? More the better? I read the W2DU article
>>>and he used 73, but I thought 77 may be better?
>>
>>If you are going to have to go out and buy the cores, type 43 (and its
>>competitors) is way more common and cheap than any of the others. It
>>is also readily available in long form toroids called shield beads.
>
>
> You are going to get into trouble with the W2DU balun at high power
> levels or with high commonn mode voltages across the balun. Each bead
> suggested is only good for about 1/2 watt dissipation in open air
> during long duty cycle.

I assume you are talking about the beads mentioned in this document:
http://www.w2du.com/r2ch21.pdf

At the bottom of page 21-6, he says that the beads have a .197 inch
hole and are .190 inch long.

The beads I am suggesting are over an inch in diameter and over an
inch long. A half watt would barely raise their temperature
noticeably above ambient. And they will fit over coax that is a half
inch in diameter. There are other shapes that are more cost effective
for smaller diameter coax. 28B0591-200 has a .23 inch hole, but is
1.38 inches long, with a .591 inch OD. A half watt won't warm that
one very much, either. And it costs only $.76 each, if you buy 10 of
them.

My point was that there are cheap long form factor toroids available
now, that weren't available when W2DU designed and described his BalUn.

> Also, a string of beads is a terribly inefficient use of ferrite
> materials. If you double the expense of the balun by doubling the
> number of beads, you only double the common mode impedance.

But it spreads the heat out, and doesn't require you to kink the coax,
which makes it last longer in the weather. If you want to wind large
diameter toroids, they now make low cost versions of these for EMI
purposes, also. For example Steward # 28B2400-000, outside diameter
2.4 inches OD, 1.4 inch ID, .5 inch thick costs only $3.36 at Digikey,

quantity 1. Again, Steward type 28 is roughly similar to Fair-Rite type 43.

> If you use a less resistive material with lower loss tangent and
> multiple turns through the core, you can greatly increase power
> capacity and choking impedance with much less increase in cost.

Yes, the turns squared effect makes better use of the mass of the ferrite to produce impedance.

3780. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:19:24 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <pu8m22lclmscp17dtrdhb9ea2kd77iq162@4ax.com>
Source record: 62042

On Thu, 30 Mar 2006 00:04:28 GMT, Gene Fuller <W4SZzzzzzz@att.net>
wrote:
>The coil I modeled is very similar to the Texas Bugcatcher model 680
>coil. (http://www.texasbugcatcher.com)

Hi Gene,

Could you pass a copy my way too?

73's
Richard Clark, KB7QHC

3781. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:20:59 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <n62dnQvx5rmYvrbZRVn-uA@adelphia.com>
Source record: 62041

Roy Lewallen wrote:
> John Popelish wrote:
>
>> . . .
>> As I understand common mode current, it is the net imbalance between
>> the current through the center conductor and the current through the
>> shield.
>
>
> If you consider the sum of the physically separate currents on the
> inside and outside of the shield to be the current "through the shield",
> that's correct. And it's equal to the current on the outside of the shield.

Yes, I was calling the sum of the currents on the inside and outside
of the shield, the current through the shield. Sorry, if that is a no no.

3782. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:31:41 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <q99m225fkhuktoeoqp869161fsv3uel248@4ax.com>
Source record: 62044

On Wed, 29 Mar 2006 17:50:28 -0500, John Popelish <jpopelish@rica.net>
wrote:

>Richard Clark wrote:
>> On Wed, 29 Mar 2006 17:30:54 -0500, John Popelish <jpopelish@rica.net>
>> wrote:
>>
>>
>>>Richard Clark wrote:
>>>(snip)
>>>
>>>>#64 material is going to offer about 3 Ohms per bead;
>>>>#43 material is going to offer about 8 Ohms per bead;
>>>>#73 & 77 material is going to offer about 18 Ohms per bead;
>>>>#75 material is going to show offer 28 Ohms per bead.
>>>
>>>(snip)
>>>
>>>What dimension cores produce these impedances at 75 meters?
>>
>>
>> Hi John,
>>
>> It is called a 101 sized bead:
>> .138" OD
>> .051" ID
>> .128" high
>
>Are these what you recommend as coax choke balun beads? That is some
>fine coax.

Hi John,

I do use some small stuff, like RG-174 and precision hard line, but
you are right, this is not for RG-58 which I commonly use. The 101
size is Amidon's reference for a multiplier for other forms.

73's
Richard Clark, KB7QHC

3783. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:32:10 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <opOdnWHq3cawurbZRVny2A@bt.com>
Source record: 62043

The choke impedance is inductive at low frequencies. Loss in the ferrite material is low.

But due to a lossy ferrite material at the higher frequencies the equivalent circuit is the inductance in parallel with a high resistance.

At sufficiently high frequencies the choke impedance is almost a pure high resistance. Which chokes the current just as well as a high inductive reactance.

This is all that's necessary to explain the operation of a choke balun.

I can't imagine why you are all making such a fuss about it.

Reg.

3784. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:56:52 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <35bm22hmvqg5ffkio6vbj8bottvbiq7pk8@4ax.com>
Source record: 62046

On Thu, 30 Mar 2006 01:32:10 +0100, "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:

>I can't imagine why you are all making such a fuss about it.

Reggie,

There's no way you can convince us you lack imagination.

73's
Richard Clark, KB7QHC

3785. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 00:57:38 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122mb82cpa52t7d@corp.supernews.com>
Source record: 62045

Richard Clark wrote:
>
> I do use some small stuff, like RG-174 and precision hard line, but
> you are right, this is not for RG-58 which I commonly use. The 101
> size is Amidon's reference for a multiplier for other forms.

I wind about 10 turns of RG-174 type coax on a core having an OD of a bit more than an inch. Works fine up to at least 300 watts with a reasonably matched antenna.

Roy Lewallen, W7EL

3786. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:18:22 UTC
From: w8ji@akorn.net
Message-ID: <1143681502.854750.76950@i40g2000cwc.googlegroups.com>
Source record: 62047

rocky wrote:
> You would use physically larger cores of 43 material and more turns in
> the core for say 75 M in a choke balun?

Sure.

The problem actually all comes down to the common mode current flowing through the beads, and that's the same as looking at voltage across the shield from one end to the other of the "choke".

Some antennas, even with very low power and 50 ohm feedpoints, will produce fairly high across the string of beads. This can cause quite a bit of heating, and cause the feedline to remain part of the radiating system despite the use of a balun.

In controlled situations strings of beads work pretty well. In other cases they are totally inadequate, and the problem can have nothing to do with the impedance across the feedline (SWR).

I never use strings of beads on my antennas.

73 Tom

3787. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:25:21 UTC
From: w8ji@akorn.net
Message-ID: <1143681921.697140.221180@z34g2000cwc.googlegroups.com>
Source record: 62048

John Popelish wrote:
> The beads I am suggesting are over an inch in diameter and over an
> inch long. A half watt would barely raise their temperature
> noticeably above ambient. And they will fit over coax that is a half
> inch in diameter. There are other shapes that are more cost effective
> for smaller diameter coax. 28B0591-200 has a .23 inch hole, but is
> 1.38 inches long, with a .591 inch OD. A half watt won't warm that
> one very much, either. And it costs only $.76 each, if you buy 10 of
> them.

> My point was that there are cheap long form factor toroids available
> now, that weren't available when W2DU designed and described his BalUn.

My point is dollar for dollar multiple turns always wind up being a
better investment. That's because impedance approximately follows the
square of the passes through the core.

> > Also, a string of beads is a terribly inefficient use of ferrite
> > materials. If you double the expense of the balun by doubling the
> > number of beads, you only double the common mode impedance.
>
> But it spreads the heat out, and doesn't require you to kink the coax,
> which makes it last longer in the weather.

I've never once had cable fail from being wound on cores. I can't
imagine why someone would need to kink the cable.

The only part of the cable that significantly increases CM impedance is
the part inside the core window. Why care how tightly the cable is
pulled against the core outside??

73 Tom

3788. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:30:13 UTC
From: w8ji@akorn.net
Message-ID: <1143682213.076092.131480@i40g2000cwc.googlegroups.com>
Source record: 62049

Richard Clark wrote:
> On Thu, 30 Mar 2006 00:04:28 GMT, Gene Fuller <W4SZzzzzzz@att.net>
> wrote:
> >The coil I modeled is very similar to the Texas Bugcatcher model 680
> >coil. (http://www.texasbugcatcher.com)
>
> Hi Gene,
>
> Could you pass a copy my way too?
>
> 73's
> Richard Clark, KB7QHC

Be sure you get a copy that has not been edited in a DXP filter.
Although free, the corrupted or selectively filtered data is useless.

73 Tom

3789. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:42:14 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <ea-dnbVuu9ONq7bZnZ2dnUVZ_vudnZ2d@adelphia.com>
Source record: 62050

w8ji@akorn.net wrote:
> John Popelish wrote:

>>My point was that there are cheap long form factor toroids available
>>now, that weren't available when W2DU designed and described his BalUn.
>
>
> My point is dollar for dollar multiple turns always wind up being a
> better investment. That's because impedance approximately follows the
> square of the passes through the core.

At low frequency, I understand how this is a good approach (though
this discussion was about the W2DU style choke balun). But at higher
frequencies, I am concerned that the turn to turn capacitance might
provide a low impedance path that parallels the choke. A string of
beads does not have this problem.

...
>>But it spreads the heat out, and doesn't require you to kink the coax,
>>which makes it last longer in the weather.
>
>
> I've never once had cable fail from being wound on cores. I can't
> imagine why someone would need to kink the cable.

I always try to not bend any cable to a smaller radius than the
manufacturer recommends, and I am not familiar with this
recommendation for common coax types used by amateurs. I would have
to look that up before wrapping a core.

> The only part of the cable that significantly increases CM impedance is
> the part inside the core window. Why care how tightly the cable is
> pulled against the core outside??

The weight of the cable will tighten the turns on the core.

3790. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:48:57 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <DNqdndDLTr4-qrbZnZ2dnUVZ_v6dnZ2d@adelphia.com>
Source record: 62051

John Popelish wrote:
> w8ji@akorn.net wrote:
>> I've never once had cable fail from being wound on cores. I can't
>> imagine why someone would need to kink the cable.

I just found this rule of thumb that says coax should not be bent to a
radius smaller than 6 times the cable diameter.
http://www.wiremold.com/www/commercial/education/white_papers/index.asp?wpid=4

For RG-58 this comes out to about a 1.2 inch bend radius.

This spec for RG 58:
http://www.pacificcable.com/Picture_Page.asp?DataName=RG58
Specifies 1.25 inch minimum bend radius, only if there is no pull on
the cable. If the cable is tension loaded, they recommend it be
wrapped over a minimum 2.5 inch radius form.

That would get to be a pretty big coil on a toroid.

3791. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 01:53:39 UTC
From: jawod <jawod@fuse.net>
Message-ID: <442B3A23.2030505@fuse.net>
Source record: 62052

Tom Ring wrote:
> jawod wrote:
>
>> However, you have the better point: Hydrogen spells danger. Hydrogen,
>> Hindenburg,...If being a survivor means being a pansy...cool.
>
>
> Most of the people that died in the Hindenburg disaster were killed by
> burning diesel fuel, which radiates lots of heat, key word being radiate.
>
> Burning hydrogen is fairly safe to stand in the middle of, as long as
> you have an air supply, since it does not radiate in the infrared range.
> And before someone responds, a hydrogen torch would be different, and
> was not the case here.
>
> Those not killed by the diesel fuel, or other non-hydrogen burning items
> were killed by the fall.
>
> tom
> K0TAR
I have never read nor heard of that explanation of the Hindenberg disaster. Certainly diesel fuel may have been involved, but the huge ball of fire has, in everything I've ever read, been attributed to hydrogen. Hydrogen IS explosive and therefore dangerous. For that matter, so is pure oxygen as we learned in early Apollo days.

Do you have a reference for the attribution of diesel fuel as the sole cause of the Hindenberg disaster? I'd love to read it.

Thanks

John

3792. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:02:32 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <Y_GWf.9721$Od7.5780@trnddc06>
Source record: 62053

"John Popelish" <jpopelish@rica.net> wrote in message
news:ea-dnbVuu9ONq7bZnZ2dnUVZ_vudnZ2d@adelphia.com...
> w8ji@akorn.net wrote:
>> John Popelish wrote:

<<SNIP >>
> At low frequency, I understand how this is a good approach (though this
> discussion was about the W2DU style choke balun). But at higher
> frequencies, I am concerned that the turn to turn capacitance might
> provide a low impedance path that parallels the choke. A string of beads
> does not have this problem.

Hi John

"For what its worth", I have wounf the coax around a single ferrite toroid
with the exact amount of turns and spacing so the impedance along the
conductor of the coax outer shield was maximum, as in parallel resonance.
I cant claim that it does any better job than any other "1:1 balun", but it
worked for me.
My point is - The turn to turn "stray" capacitance doesnt necessarily have
to be a source of performance degradation.

Jerry

3793. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:09:46 UTC
From: kd5sak <kd5sak@sbcglobal.net>
Message-ID: <K5HWf.53898$F_3.21900@newssvr29.news.prodigy.net>
Source record: 62055

"jawod" <jawod@fuse.net> wrote in message news:442B3A23.2030505@fuse.net...
> Tom Ring wrote:
>>
>> tom
>> K0TAR
> I have never read nor heard of that explanation of the Hindenberg
> disaster. Certainly diesel fuel may have been involved, but the huge ball
> of fire has, in everything I've ever read, been attributed to hydrogen.
> Hydrogen IS explosive and therefore dangerous. For that matter, so is
> pure oxygen as we learned in early Apollo days.
>
> Do you have a reference for the attribution of diesel fuel as the sole
> cause of the Hindenberg disaster? I'd love to read it.
>
> Thanks
>
> John

Some time in the past I read that one source of the brilliant fast moving
flame evident in
the old newsreels of the Hindenberg disaster was the doped fabric skin of
that dirigible.
It was said that it might as well have been celluloid, a near relation to
guncotton. I was only 4 at the time so can claim no direct knowledge beyond
my reading about it.

Harold
KD5SAK

3794. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:11:54 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <2qednauOeZGeoLbZRVn-ig@adelphia.com>
Source record: 62054

Jerry Martes wrote:
> "John Popelish" <jpopelish@rica.net> wrote in message
> news:ea-dnbVuu9ONq7bZnZ2dnUVZ_vudnZ2d@adelphia.com...
>
>>w8ji@akorn.net wrote:
>>
>>>John Popelish wrote:
>
>
> <<SNIP >>
>
>>At low frequency, I understand how this is a good approach (though this
>>discussion was about the W2DU style choke balun). But at higher
>>frequencies, I am concerned that the turn to turn capacitance might
>>provide a low impedance path that parallels the choke. A string of beads
>>does not have this problem.
>
>
>
> Hi John
>
> "For what its worth", I have wounf the coax around a single ferrite toroid
> with the exact amount of turns and spacing so the impedance along the
> conductor of the coax outer shield was maximum, as in parallel resonance.
> I cant claim that it does any better job than any other "1:1 balun", but it
> worked for me.
> My point is - The turn to turn "stray" capacitance doesnt necessarily have
> to be a source of performance degradation.

I think of it as more of a upper limit. Once you are above resonance,
the choke action has to drop. And if you are using one of the low
frequency ferrites, the resonance isn't going to be anything to write
home about either. ;-)

3795. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:19:04 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <seHWf.651108$qk4.505127@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62056

Cecil,

I forgot to say one thing.

It appears that the files I sent you got corrupted somehow. First there was the problem of "10 turns per foot" and now all the geometry check errors. (Did you drop the card deck on the floor?) 8-) 8-)

The original files are still good at my end. I will resend if that will help.

73,
Gene
W4SZ

Cecil Moore wrote:
>
>
> Here's just about all you need to know about Gene's EZNEC file:
>
> http://www.qsl.net/w5dxp/ezerror.GIF
>
> EZNEC doesn't like 4 TPI coils at 4 MHz.

3796. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:22:37 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122mg7elcu3fub4@corp.supernews.com>
Source record: 62057

jawod wrote:
> I have never read nor heard of that explanation of the Hindenberg
> disaster. Certainly diesel fuel may have been involved, but the huge
> ball of fire has, in everything I've ever read, been attributed to
> hydrogen. Hydrogen IS explosive and therefore dangerous. For that
> matter, so is pure oxygen as we learned in early Apollo days.
>
> Do you have a reference for the attribution of diesel fuel as the sole
> cause of the Hindenberg disaster? I'd love to read it.

There was a very interesting documentary on public TV a few years ago about that -- it might have been Nova. Their conclusion was that the combustion was started on and supported by the fabric's paint, which was loaded with rust and aluminum powder -- thermite! (See for example http://en.wikipedia.org/wiki/Thermite.) Samples of the painted fabric kept by some witnesses proved to be extremely flammable.

Hydrogen is explosive only in the correct, fairly narrow, range of mixtures with oxygen. A big bag of hydrogen won't explode. It'll burn only at the outside edges where it's mixing with oxygen. It'll rapidly disperse to a point where it's too lean a mixture to burn, so I believe there's only a fairly narrow physical region around a blob of pure hydrogen where it's flammable. Hydrogen stopped being used for dirigibles more because of the danger perceived by the public after seeing the Hindenburg than by real danger.

Roy Lewallen, W7EL

3797. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:31:37 UTC
From: Jerry Martes <j.jmartes@verizon.net>
Message-ID: <dqHWf.12534$VL2.3377@trnddc04>
Source record: 62058

"John Popelish" <jpopelish@rica.net> wrote in message
news:2qednauOeZGeoLbZRVn-ig@adelphia.com...
> Jerry Martes wrote:
>> "John Popelish" <jpopelish@rica.net> wrote in message
>> news:ea-dnbVuu9ONq7bZnZ2dnUVZ_vudnZ2d@adelphia.com...
>>
>>>w8ji@akorn.net wrote:
>>>
>>>>John Popelish wrote:
>>
>>
>> <<SNIP >>
>>
>>>At low frequency, I understand how this is a good approach (though this
>>>discussion was about the W2DU style choke balun). But at higher
>>>frequencies, I am concerned that the turn to turn capacitance might
>>>provide a low impedance path that parallels the choke. A string of beads
>>>does not have this problem.
>>
>>
>>
>> Hi John
>>
>> "For what its worth", I have wounf the coax around a single ferrite
>> toroid with the exact amount of turns and spacing so the impedance along
>> the conductor of the coax outer shield was maximum, as in parallel
>> resonance. I cant claim that it does any better job than any other "1:1
>> balun", but it worked for me.
>> My point is - The turn to turn "stray" capacitance doesnt necessarily
>> have to be a source of performance degradation.
>
> I think of it as more of a upper limit. Once you are above resonance, the
> choke action has to drop. And if you are using one of the low frequency
> ferrites, the resonance isn't going to be anything to write home about
> either. ;-)

Hi John

I am not smart enough to be able to give instructions to *anyone*. But, I
have thought of "hi Q" resonance something I want to avoid anyway in making
a Balun. I was worried that a high Q resonant circuit without sisnificant
loss might assist coupling to the feed line if/when that feed line was close
to some multiple of a half wave.

Anyway, you get the idea I was trying to address concerning any worry about stray capacitance ruining the Balun performance.

Jerry

3798. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:33:48 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <gsHWf.6761$4L1.6693@newssvr11.news.prodigy.com>
Source record: 62059

Gene Fuller wrote:
> I just ran a cut-down version in the EZNEC 4 demo, and I found no
> geometry errors.

You only get the geometry warning after the creation of the
helix, not after you store and reload the file. Create the
helix and you will get those geometry warnings.
--
73, Cecil http://www.qsl.net/w5dxp

3799. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:39:15 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <nxHWf.6762$4L1.5492@newssvr11.news.prodigy.com>
Source record: 62060

Gene Fuller wrote:
> The original files are still good at my end. I will resend if that will
> help.

Gene, you won't understand what the problem is until you create
the coil in EZNEC 4.0. Right after creation of the coil, EZNEC
will display the geometry errors. After that, the geometrical
errors appear to be down the list from the segment errors and
unavailable for viewing.
--
73, Cecil http://www.qsl.net/w5dxp

3800. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:41:10 UTC
From: w8ji@akorn.net
Message-ID: <1143686470.586411.81820@j33g2000cwa.googlegroups.com>
Source record: 62061

John Popelish wrote:
> At low frequency, I understand how this is a good approach (though
> this discussion was about the W2DU style choke balun). But at higher
> frequencies, I am concerned that the turn to turn capacitance might
> provide a low impedance path that parallels the choke. A string of
> beads does not have this problem.

Not a valid point.

Say we have 1000 ohms XL in parallel with 1000 ohms Xc at 10MHz. At 14 MHz we have 1400 ohms XL in parallel with 714 ohms Xc. The combined reactance is just over 1400 ohms.

Capacitive reactance in parallel with inductive reactance increases the impedance, until we are over 1.414 times the resonant frequency. Anyplace below that, the shut C decrases unwanted coupling.

If you look at actual chokes, you'll see that is a totally unfounded concern at HF.

That toroid showing the flipped winding that is supposed to reduce stray C? It actually makes a choke work slightly worse...not bettter...until we get way up in VHF or UHF.

> I always try to not bend any cable to a smaller radius than the
> manufacturer recommends, and I am not familiar with this
> recommendation for common coax types used by amateurs. I would have
> to look that up before wrapping a core.

Manufacturers are very conservative. I use RG400 in very tight coils without any issue, and my main baluns are all air core RG213, LMR400, or RG8X. I do some very tight radius bends without problems. My 160 vertical array uses a phase inverting transformer made with RG-400, and it is two parallel 3" tall stacks of 61 material 2" OD cores wound as tight as possible with RG-303. It handles huge voltage across the winding without any issues.

> > The only part of the cable that significantly increases CM impedance is
> > the part inside the core window. Why care how tightly the cable is
> > pulled against the core outside??
>
> The weight of the cable will tighten the turns on the core.

Simple to fix. Don't hang anything from the cable leaving the core.

I have over 300 feet of RG8X hanging vertically from a high dipole, but I have a rope lacing the cable as a strain relief. Been up since 1999.

73 Tom

3801. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 02:53:14 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <mLqdnYGhZecp27bZnZ2dnUVZ_uqdnZ2d@adelphia.com>
Source record: 62062

w8ji@akorn.net wrote:
> John Popelish wrote:
>
>>At low frequency, I understand how this is a good approach (though
>>this discussion was about the W2DU style choke balun). But at higher
>>frequencies, I am concerned that the turn to turn capacitance might
>>provide a low impedance path that parallels the choke. A string of
>>beads does not have this problem.
>
>
> Not a valid point.
>
> Say we have 1000 ohms XL in parallel with 1000 ohms Xc at 10MHz. At 14
> MHz we have 1400 ohms XL in parallel with 714 ohms Xc. The combined
> reactance is just over 1400 ohms.
>
> Capacitive reactance in parallel with inductive reactance increases the
> impedance, until we are over 1.414 times the resonant frequency.
> Anyplace below that, the shut C decrases unwanted coupling.
>
> If you look at actual chokes, you'll see that is a totally unfounded
> concern at HF.
>
> That toroid showing the flipped winding that is supposed to reduce
> stray C? It actually makes a choke work slightly worse...not
> bettter...until we get way up in VHF or UHF.

All sounds good to me. I just hadn't computed the turn to turn
capacitance for wound coax shield to figure out how high you would
have to go in frequency before the capacitance would be a limit. Glad
to hear that there is lots of range where it is no problem.

3802. Re: Room Cap Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 03:17:54 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <442B4DF5.E128017E@shaw.ca>
Source record: 62063

Ian wrote:
>
> Hi,
> Does anyone have any experience with or knowledge of Room Cap Antennas.
>
> Ian
> VA3SOF

Never heard the term and can't find it on Google. Where did you
get it from?

Irv VE6BP
--

Diagnosed Type II Diabetes March 5 2001
Beating it with diet and exercise!
297/215/210 (to be revised lower)
58"/43"(!)/44" (already lower too!)

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

3803. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 03:30:24 UTC
From: "David G. Nagel" <nagel@core.com>
Message-ID: <122mk6uerlqugef@corp.supernews.com>
Source record: 62064

jawod wrote:
> Tom Ring wrote:
>
>> jawod wrote:
>>
>>> However, you have the better point: Hydrogen spells danger.
>>> Hydrogen, Hindenburg,...If being a survivor means being a pansy...cool.
>>
>>
>>
>> Most of the people that died in the Hindenburg disaster were killed by
>> burning diesel fuel, which radiates lots of heat, key word being radiate.
>>
>> Burning hydrogen is fairly safe to stand in the middle of, as long as
>> you have an air supply, since it does not radiate in the infrared
>> range. And before someone responds, a hydrogen torch would be
>> different, and was not the case here.
>>
>> Those not killed by the diesel fuel, or other non-hydrogen burning
>> items were killed by the fall.
>>
>> tom
>> K0TAR
>
> I have never read nor heard of that explanation of the Hindenberg
> disaster. Certainly diesel fuel may have been involved, but the huge
> ball of fire has, in everything I've ever read, been attributed to
> hydrogen. Hydrogen IS explosive and therefore dangerous. For that
> matter, so is pure oxygen as we learned in early Apollo days.
>
> Do you have a reference for the attribution of diesel fuel as the sole
> cause of the Hindenberg disaster? I'd love to read it.
>
> Thanks
>
> John
Most of the black smoke and flame you see in the newsreel footage is
from the fuel supply and the painted canvas covering of the zeppelin.
Hydrogen when it burns is not visible and since hydrogen rises it
quickly dissipated upwards.

David N

3804. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 03:51:18 UTC
From: Tom Ring <news0002@taring.org>
Message-ID: <442b55b6$0$7328$39cecf19@news.twtelecom.net>
Source record: 62065

jawod wrote:

>
> I have never read nor heard of that explanation of the Hindenberg
> disaster. Certainly diesel fuel may have been involved, but the huge
> ball of fire has, in everything I've ever read, been attributed to
> hydrogen. Hydrogen IS explosive and therefore dangerous. For that
> matter, so is pure oxygen as we learned in early Apollo days.
>
> Do you have a reference for the attribution of diesel fuel as the sole
> cause of the Hindenberg disaster? I'd love to read it.
>

Well, google finds this one easily

http://www.hydrogennow.org/Facts/Safety-1.htm

and this one that puts the blame on the coating on the envelope

http://www.abc.net.au/science/k2/moments/s1052864.htm

and another

http://www.ch2bc.org/hindenburg.htm

All were from the top 10 that google found, you can do it as well. I
searched for "hydrogen hindenburg".

There are lots of sites that deal with the history, and none of them
that I have found place any of the blame for the deaths on hydrogen
combustion. Except perhaps for the ignition. And that part will never
be known.

tom
K0TAR

3805. Re: Balloon lifted wire antenna?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 05:07:07 UTC
From: Sum Ting Wong <sumtingwong@privacy.net>
Message-ID: <jlpm22pjocq6qhs0dguudqvninjeooep81@4ax.com>
Source record: 62066

Getting away from antenna bombs and back to the balloon lifted wire antenna... what's the best way to drain the static charge off the wire so as not to zap out the front end of your receiver? High resistance carbon resistor or RF choke to ground? What are the recommended values and sources?

S.T.W.

3806. Comet CHA250B HF/VHF Vertical Antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 06:08:13 UTC
From: Richard Miller <wizzard6@optusnet.com.au>
Message-ID: <442b75d3$0$7605$afc38c87@news.optusnet.com.au>
Source record: 62067

Hi I was just wondering if any one has used or is using a Comet CHA250B
HF/VHF Vertical Antenna and what did they think about the antenna over all.

--

73's
Regards,

Richard Miller
E-mail: wizzard6@optusnet.com.au

3807. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 09:05:52 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <QbNWf.43398$_S7.3569@newssvr14.news.prodigy.com>
Source record: 62068

Gene Fuller wrote:
> The original files are still good at my end. I will resend if that will
> help.

I've been wondering why you could create close spaced coils
and I couldn't without objections from EZNEC.

I've been sitting here creating coils to see where the geometry
check fails. On 4 MHz, with a 25 turn coil and a 0.5 ft. diameter,
the turn spacing passes the geometry test at 0.175 ft. and higher
but fails at 0.174 ft. and lower.
--
73, Cecil http://www.qsl.net/w5dxp

3808. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 09:15:46 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <6lNWf.43399$_S7.11889@newssvr14.news.prodigy.com>
Source record: 62069

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> The original files are still good at my end. I will resend if that
>> will help.
>
> I've been wondering why you could create close spaced coils
> and I couldn't without objections from EZNEC.
>
> I've been sitting here creating coils to see where the geometry
> check fails. On 4 MHz, with a 25 turn coil and a 0.5 ft. diameter,
> the turn spacing passes the geometry test at 0.175 ft. and higher
> but fails at 0.174 ft. and lower.

It just occurred to me that this geometry check failure that I have
been seeing might be a bug in EZNEC. I just downloaded and installed
the latest update and the problem seems to have been resolved.

I apologize for any confusion.
--
73, Cecil http://www.qsl.net/w5dxp

3809. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 11:40:36 UTC
From: w8ji@akorn.net
Message-ID: <1143718836.600755.242350@e56g2000cwe.googlegroups.com>
Source record: 62070

Cecil Moore wrote:
> It just occurred to me that this geometry check failure that I have
> been seeing might be a bug in EZNEC. I just downloaded and installed
> the latest update and the problem seems to have been resolved.

It just took from post number 808 to post number 840, about 30 posts, to resolve an error occuring in one person's computer. For a real treat, go back to post 808 and start reading the tone of the entire exchange, and make a written list of the errors.

Imagine how long it would take to resolve something complicated in this thread!

Now you see why I won't get into this. I go to Waffle house when I want to look at someone turning out waffles at a high rate of speed.

73 Tom

3810. Re: what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 11:46:34 UTC
From: w8ji@akorn.net
Message-ID: <1143719194.348797.225290@g10g2000cwb.googlegroups.com>
Source record: 62071

http://www.w8ji.com/toroid_balun_winding.htm

73 Tom

3811. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 13:50:03 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <fmRWf.10393$tN3.9770@newssvr27.news.prodigy.net>
Source record: 62072

w8ji@akorn.net wrote:
> It just took from post number 808 to post number 840, about 30 posts,
> to resolve an error occuring in one person's computer.

I apologize for not being omniscient, Tom. It just didn't occur
to me that the problem could be a bug in EZNEC+V4.0.0.
--
73, Cecil http://www.qsl.net/w5dxp

3812. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 13:53:56 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <UpRWf.10396$tN3.6606@newssvr27.news.prodigy.net>
Source record: 62073

w8ji@akorn.net wrote:
> Now you see why I won't get into this.

It's not hard to see why you are afraid to comment on the
graphic at: http://www.qsl.net/w5dxp/1WLDIP.GIF

My statements there are either right or wrong.
--
73, Cecil http://www.qsl.net/w5dxp

3813. Adjusting a colinear antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 15:09:01 UTC
From: Ken Bessler <kg0wx@NOSPAMyahoo.com>
Message-ID: <kwSWf.6462$bX5.759@dukeread04>
Source record: 62074

I'm building a 4 segment + whip coaxial collinear antenna for
2.441 ghz. The coax I'm using is RG58 with a VF of .66 but
I was told by some of you that the VF will vary on this antenna.

What I need to know is which way and how much should I
adjust the element lengths to compensate?

Also, I followed the instructions on this webpage to the letter:

http://wireless.gumph.org/content/4/3/011-mini-wireless-antenna.html

But instead of getting sector lengths of 40.5mm, I got 39mm
somehow. Have I created a waste of time because of that?

One last question - with HF antennas, if they are close to other
objects they sometimes need to be shortened slightly to work.
I plan on mounting these antennas on the back of my ThinkPad's
display so maybe they will work being 1.5mm short per sector?

God I love this stuff!
--
73's de Ken KG0WX - Kadiddlehopper #11808,
Flying Pigs #-1055, Grid EM17io,
Elecraft K2 #4913, XG2, 4SQRP Tenna Dipper,
Heath GD-1B, MP-1(X)antenna & HLA-150 amp.

3814. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 15:14:40 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <ABSWf.61690$Jd.23439@newssvr25.news.prodigy.net>
Source record: 62075

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> Now you see why I won't get into this.
>
>
> It's not hard to see why you are afraid to comment on the
> graphic at: http://www.qsl.net/w5dxp/1WLDIP.GIF
>
> My statements there are either right or wrong.

They're just disembodied statements, Cecil. Come back
when you can supplement them with some theory and
experimental proof.
73,
Tom Donaly, KA6RUH

3815. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 15:31:14 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <6RSWf.43521$bn3.25197@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62076

Cecil,

What's that old saying? Something like, "It's a poor workman who blames
his tools."

8-)

73,
Gene
W4SZ

Cecil Moore wrote:
> w8ji@akorn.net wrote:
>
>> It just took from post number 808 to post number 840, about 30 posts,
>> to resolve an error occuring in one person's computer.
>
>
> I apologize for not being omniscient, Tom. It just didn't occur
> to me that the problem could be a bug in EZNEC+V4.0.0.

3816. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 15:47:38 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <u4TWf.49601$2O6.13073@newssvr12.news.prodigy.com>
Source record: 62077

"Tom Donaly" <dtdonaly@sbcglobal.net> wrote:
> Cecil Moore wrote:
> > It's not hard to see why you are afraid to comment on the
> > graphic at: http://www.qsl.net/w5dxp/1WLDIP.GIF
> >
> > My statements there are either right or wrong.
>
> They're just disembodied statements, Cecil. Come back
> when you can supplement them with some theory and
> experimental proof.

It is trivial to use EZNEC to stick a coil at those points.
I have offered EZNEC proof on my web site. Nobody
wants to discuss it. Wonder why?
--
73, Cecil, W5DXP

3817. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 15:55:01 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <pbTWf.49603$2O6.45812@newssvr12.news.prodigy.com>
Source record: 62078

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:
> What's that old saying? Something like, "It's a poor workman who blames
> his tools."

When I was at Intel we didn't blame our customers for Intel's
programming bugs and software problems.

I am happy to find out that my years-long struggles to create a
decent coil in EZNEC was a program bug. Thanks to you, EZNEC
is twice as useful to me today as it was yesterday.
--
73, Cecil, W5DXP

3818. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 16:37:07 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <TOTWf.64692$dW3.32642@newssvr21.news.prodigy.com>
Source record: 62079

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
> But the propagation delay, with a true transmission line, should be
> constant versus frequency as it depends only on coil dimensions and
> hence on L and C. The velocity factor should also be a constant.

Reg, if the SWR on a piece of transmission line is infinite and one tries
to use the standing wave current phase to measure the propagation
delay in a piece of that transmission line, what would be the result?
--
73, Cecil, W5DXP

3819. tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 17:45:45 UTC
From: DrJoe <phdjwg@earthlink.net>
Message-ID: <1143740745.091525.126930@v46g2000cwv.googlegroups.com>
Source record: 62080

Hello all,

I am new to the group but have a specific reason for joining. The primary reason I joined, like many of you I am sure, is to get information about short wave radio. My situation: I have the appropriate parcel of land (110) acres that is free from any legal impediments to building a short wave radio tower. The land is located in West Central Alabama, in rural Fayette County.I also have the necessary funding to build a short wave radio tower and transmitter. The site has been evaluated as a perfect location that is virtually free from any potential liability and from the perspective of reaching millions of people in Mexico and Central America.

Questions for the group:

1. What are the potential financial rewards for owning and operating a short wave radio transmitter/tower?

2. How does an owner go about establishing a revenue stream from potential purchasers of air time.

3. Who would the primary customer base be?

Comments or suggestions?

Thank you,

DrJoe (newbie)

3820. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 17:54:56 UTC
From: Howard W3CQH <hgorden@adelphia.net>
Message-ID: <lvWdnVydvq3thrHZnZ2dnUVZ_vudnZ2d@adelphia.com>
Source record: 62081

be sure that you purchase your "shortwave license" from: WWW.FCC.GOV before
you start transmitting.

"DrJoe" <phdjwg@earthlink.net> wrote in message
news:1143740745.091525.126930@v46g2000cwv.googlegroups.com...
> Hello all,
>
> I am new to the group but have a specific reason for joining. The
> primary reason I joined, like many of you I am sure, is to get
> information about short wave radio. My situation: I have the
> appropriate parcel of land (110) acres that is free from any legal
> impediments to building a short wave radio tower. The land is located
> in West Central Alabama, in rural Fayette County.I also have the
> necessary funding to build a short wave radio tower and transmitter.
> The site has been evaluated as a perfect location that is virtually
> free from any potential liability and from the perspective of reaching
> millions of people in Mexico and Central America.
>
>
> Questions for the group:
>
>
> 1. What are the potential financial rewards for owning and operating a
> short wave radio transmitter/tower?
>
>
> 2. How does an owner go about establishing a revenue stream from
> potential purchasers of air time.
>
>
> 3. Who would the primary customer base be?
>
>
> Comments or suggestions?
>
>
> Thank you,
>
>
> DrJoe (newbie)
>

3821. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:08:44 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <M8VWf.53996$F_3.50507@newssvr29.news.prodigy.net>
Source record: 62082

"DrJoe" <phdjwg@earthlink.net> wrote:
> Questions for the group:

This is an *amateur radio* group. The FCC strictly prohibits us from using
our Amateur Radio License for any commercial venture. Some members
of the group are licensed commercial RF engineers and may have answers
to your questions. The commercial RF license and amateur radio license
are completely separate items.
--
73, Cecil, W5DXP

3822. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:17:55 UTC
From: Tim Wescott <tim@seemywebsite.com>
Message-ID: <4YWdnWAhrY5avbHZnZ2dnUVZ_sidnZ2d@web-ster.com>
Source record: 62083

DrJoe wrote:
> Hello all,
>
> I am new to the group but have a specific reason for joining. The
> primary reason I joined, like many of you I am sure, is to get
> information about short wave radio. My situation: I have the
> appropriate parcel of land (110) acres that is free from any legal
> impediments to building a short wave radio tower. The land is located
> in West Central Alabama, in rural Fayette County.I also have the
> necessary funding to build a short wave radio tower and transmitter.
> The site has been evaluated as a perfect location that is virtually
> free from any potential liability and from the perspective of reaching
> millions of people in Mexico and Central America.
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>
> Questions for the group:
>
>
> 1. What are the potential financial rewards for owning and operating a
> short wave radio transmitter/tower?
>
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> 2. How does an owner go about establishing a revenue stream from
> potential purchasers of air time.
>
>
> 3. Who would the primary customer base be?
>
>
> Comments or suggestions?
>
>
> Thank you,
>
>
> DrJoe (newbie)
>
Well, this is a radio _amateur_ group, but there may be some pros
lurking around. Here are some uninformed opinions to keep you going,
however:

1. One of the best quotes I ever heard about hobby businesses was "the
way to make a small fortune in model airplane motors is to start out
with a large one". I don't know if that applies here. Potentially I

expect that a single transmitter/tower would net you no more than a decent full-time job as a station manager. It would only buy the fleet of BMWs if it was the seed for a great many more.

2. Identify potential advertisers and sell air time. I have _no idea_ of how that works in shortwave, but I imagine you'd be traveling in South America a lot.

3. People who sell stuff to the shortwave listening public.

Questions to ask are:

* What are the regulations surrounding what you're trying to do, both in the US and in any countries you may wish to travel to and remain unarrested.

* What effective radiated power will you be allowed, and what's the most cost effective antenna/transmitter combination to get you there?

* If you plan on starting small but want to upgrade later is it best to start with a dinky antenna and big transmitter, big antenna and dinky transmitter, medium-dinky on both?

* Who would listen to this stuff?

* What do they buy?

* Who sells advertising for that stuff?

* Do they believe that advertising on short wave would work?

* Will they believe that advertising on _your_ station would work?

* How can you contact them?

* Can you work out the financial details cross-border so that you won't get cheated, and your customers won't have to worry either?

--

Tim Wescott
Wescott Design Services
http://www.wescottdesign.com

Posting from Google? See http://cfaj.freeshell.org/google/

3823. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:20:50 UTC
From: DrJoe <phdjwg@earthlink.net>
Message-ID: <1143742850.263194.221190@i39g2000cwa.googlegroups.com>
Source record: 62084

hey Howard,

Does that shortwave license have a specific code when searching the FCC site?

3824. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:25:20 UTC
From: DrJoe <phdjwg@earthlink.net>
Message-ID: <1143743120.281824.235570@g10g2000cwb.googlegroups.com>
Source record: 62085

Hey Tim,

Thank you very much for the information. I really am just starting to investigate the possibilities. My interest was peaked when I received an offer to buy the land I own for approximately 3 times the approased value from a man in NC who owns and operates these types of facilities. His particular bent, like many these days I am sure, is religious broadcasting, but he disclosed in our conversation that this group of potential advertisers/sponsers would more than pay for it. After our initial conversations, I just decided to check out the possibilities before I went and did anything like actually sell him the land.

Joe

3825. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:25:33 UTC
From: DrJoe <phdjwg@earthlink.net>
Message-ID: <1143743133.695334.7450@u72g2000cwu.googlegroups.com>
Source record: 62086

Hey Tim,

Thank you very much for the information. I really am just starting to investigate the possibilities. My interest was peaked when I received an offer to buy the land I own for approximately 3 times the appraised value from a man in NC who owns and operates these types of facilities. His particular bent, like many these days I am sure, is religious broadcasting, but he disclosed in our conversation that this group of potential advertisers/sponsers would more than pay for it. After our initial conversations, I just decided to check out the possibilities before I went and did anything like actually sell him the land.

Joe

3826. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:29:49 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <rvednYuSNfYmvrHZRVnyiQ@bt.com>
Source record: 62087

Sorry Cec, but I havn't the foggiest idea what you are talking about.

Reg

==========
"Cecil Moore" <mycall@arrl.net> wrote in message
news:TOTWf.64692$dW3.32642@newssvr21.news.prodigy.com...
>
> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
> > But the propagation delay, with a true transmission line, should
be
> > constant versus frequency as it depends only on coil dimensions
and
> > hence on L and C. The velocity factor should also be a constant.
>
> Reg, if the SWR on a piece of transmission line is infinite and one
tries
> to use the standing wave current phase to measure the propagation
> delay in a piece of that transmission line, what would be the
result?
> --
> 73, Cecil, W5DXP
>
>

3827. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:41:40 UTC
From: Me <Me@shadow.orgs>
Message-ID: <Me-27D352.09415730032006@netnews.worldnet.att.net>
Source record: 62088

In article <lvWdnVydvq3thrHZnZ2dnUVZ_vudnZ2d@adelphia.com>,
"Howard W3CQH" <hgorden@adelphia.net> wrote:

> be sure that you purchase your "shortwave license" from: WWW.FCC.GOV before
> you start transmitting.
>

and plan on not actuall getting one, for a couple of YEARS, and only
after spending a few HUNDRED THOUSAND DOLLARS, in Broadcast Lawyers
Fees, Broacast Enginerering Consulting Fees, and FCC International
Licensing Fees........

Me one who knows, just how hard it is to get one.........

3828. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:42:39 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <zEVWf.54002$F_3.39406@newssvr29.news.prodigy.net>
Source record: 62089

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
> Sorry Cec, but I havn't the foggiest idea what you are talking about.

Let me ask it a little differently. We all know what a plot of the standing wave current magnitude looks like up and down an open-circuit transmission line.

But what does a plot of the associated standing wave current *phase* look like up and down that same open-circuited transmission line?
--
73, Cecil, W5DXP

3829. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 18:55:42 UTC
From: Bob Bob <bob3bob3@cox.net>
Message-ID: <e6mtf3-jn8.ln1@p400bob.personal.cox.net>
Source record: 62090

Hi Joe

You probably realise but thought I'd mention that this newsgroup is more oriented towards "amateur" or "ham" radio non commercial systems. The rules/laws for operating amateur equipment are a lot "looser" than those for a commercial enterprise you are suggesting. The license cost is also far lower than what you are looking at.

I would suggest that shortwave broadcasting probably isnt going to do very well as a business enterprise given the set of technologies that are around now and coming soon. Satellite based systems and broadband networks are probably a more likely source. I realise that you mentioned that your market is more south of here but satellite radios (for example) will eventually be as cheap as shortwave radios and have much better audio quality. Given the capital investment you are thinking of I would think you wouldnt have enough time to realise a good return.

I might also suggest that the nature of shortwave propogation is that it isnt as reliable as you'd like. Stations like VOA handle this by using a number of different frequencies depending on conditions at the time. This obviously increases the $ investment in equipment/antennas and concerns over listener education (where to tune) may mean a loss of market.

re question 1;

You cant setup a system whereby the listener pays for receiving so your income stream is going to be more advertisers or others that might use the station for their own purposes. What does the Mexican, South American market want? I'll admit that this is somewhat beyond my experience.

I should point out that this topic isnt in my normal purvue. I hope however you find my comments useful.

Cheers Bob W5/VK2YQA East Texas.

DrJoe wrote:
>
> Hello all,
>
> I am new to the group but have a specific reason for joining. The
> primary reason I joined, like many of you I am sure, is to get
> information about short wave radio. My situation: I have the
> appropriate parcel of land (110) acres that is free from any legal
> impediments to building a short wave radio tower. The land is located
> in West Central Alabama, in rural Fayette County.I also have the
> necessary funding to build a short wave radio tower and transmitter.
> The site has been evaluated as a perfect location that is virtually

> free from any potential liability and from the perspective of reaching
> millions of people in Mexico and Central America.
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>
> Questions for the group:
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>
> 1. What are the potential financial rewards for owning and operating a
> short wave radio transmitter/tower?
>
>
> 2. How does an owner go about establishing a revenue stream from
> potential purchasers of air time.
>
>
> 3. Who would the primary customer base be?

3830. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 19:15:10 UTC
From: richardharrison@webtv.net
Message-ID: <21947-442C2E3E-243@storefull-3255.bay.webtv.net>
Source record: 62091

Tom, W8JI wrote:
"Many people vizualize current in a small loading inductor as starting at one end and traveling through the conductor turn-by-turn.

That`s how the experts say the coul in a TWT works, and it is no different from other coils.

RF energy travels in waves which induce currents on conductors in their paths which in turn induce more waves.

Energy has no choice but to follow the conductor. It is nonsense to say this is not the means used by energy traveling through an inductor while riding on its surface due to skin effect. The energy follows the conductor wrapping its way around the form fron start to finish.

Energy hits the speed limit of physics if it can at 300,000,000 meters per second. but
its interaction with any conductor slows it depending on the characteristics of the conductor guiding it.

An inductor reduces the group velocity (actual energy velocity) of any wave traveling along its surface. The group velocity is always less than the velocity of light (300,000,000 m/sec.). Phase velocity may exceed the velocity of light but only to the extent that the actual group velocity is slower than the velocity of light.

An inductor reduces the group velocity of a wave traveling upn is surface.Inductors are also known as "retardation coils".

The RF`s changing current generates waves. In an inductor, it ideally lags voltage across that inductor (as a circuiy element) by 90-degrees. Time represented by a 90-degree delay can be calculated by: velocity = frequency x wavelength. 90-degrees is 1/4-wavelength.

It is possible to measure the delay of a circuit but when your measurement seems to violate the laws of physics it`s more likely your measurement was flawed than you have discovered any new physics.

Tight coupling does not speed transfer of energy through a coil. TWT coils are tightly coupled. Remember, the coil does not allow current to change instantly. Lenz`s law prevails. Current lag enforces a delay.

Tom also wrote on "Welcome to W8JI.com":
"An inductor delays the flow of current in relationship to applied voltages as the magnetic field inside the coil expands. Voltage increases before current starts to flow. This phase relationship berween voltage and current is often confused with time delay in the inductor."

I`m done with my critique only because I`m out of time.

Best regards, Richard Harrison, KB5WZI

3831. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 19:25:50 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <3M6dnQUVTcMUoLHZRVnytA@bt.com>
Source record: 62092

"Cecil Moore" <mycall@arrl.net> wrote in message
news:zEVWf.54002$F_3.39406@newssvr29.news.prodigy.net...
> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
> > Sorry Cec, but I havn't the foggiest idea what you are talking
about.
>
> Let me ask it a little differently. We all know what a plot of the
standing
> wave current magnitude looks like up and down an open-circuit
transmission
> line.
>
> But what does a plot of the associated standing wave current *phase*
look
> like up and down that same open-circuited transmission line?
> --
> 73, Cecil, W5DXP
>
==========
What is 'phase'?

Reg.

3832. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 20:47:12 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e0hg4gfuq2@engnntp2.cig.mot.com>
Source record: 62095

You want information on *Commercial* station operation, not amateur.

73, Steve, K9DCI

"DrJoe" <phdjwg@earthlink.net> wrote in message
news:1143740745.091525.126930@v46g2000cwv.googlegroups.com...
> Hello all,
>
> I am new to the group but have a specific reason for joining. The
> primary reason I joined, like many of you I am sure, is to get
> information about short wave radio. My situation: I have the
> appropriate parcel of land (110) acres that is free from any legal
> impediments to building a short wave radio tower. The land is located
> in West Central Alabama, in rural Fayette County.I also have the
> necessary funding to build a short wave radio tower and transmitter.
> The site has been evaluated as a perfect location that is virtually
> free from any potential liability and from the perspective of reaching
> millions of people in Mexico and Central America.
>
>
> Questions for the group:
>
>
> 1. What are the potential financial rewards for owning and operating a
> short wave radio transmitter/tower?
>
>
> 2. How does an owner go about establishing a revenue stream from
> potential purchasers of air time.
>
>
> 3. Who would the primary customer base be?
>
>
> Comments or suggestions?
>
>
> Thank you,
>
>
> DrJoe (newbie)
>

3833. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 20:48:57 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <ZuXWf.49670$2O6.2298@newssvr12.news.prodigy.com>
Source record: 62093

"Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
> What is 'phase'?

I'll send you a .jpg image of a page from Kraus's book.
Phase is the phase of a phasor. :-)
--
73, Cecil, W5DXP
.

3834. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 20:58:05 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <DJydnd8yj_zB27HZnZ2dnUVZ_v-dnZ2d@comcast.com>
Source record: 62094

Commercial Radio License = $$$$$$$$$$$$$$$$$$$$$$$$

It takes a long time to recover your initial investment.

Look into planting something with less capital investment and a higher
rate of return.

As stated in another response, this is amateur, meaning NOT FOR PROFIT'
radio. I have $12000 invested in my station with absolutely NO rate of
return in $$$ terms.

Cecil Moore wrote:

> "DrJoe" <phdjwg@earthlink.net> wrote:
>
>>Questions for the group:
>
>
> This is an *amateur radio* group. The FCC strictly prohibits us from using
> our Amateur Radio License for any commercial venture. Some members
> of the group are licensed commercial RF engineers and may have answers
> to your questions. The commercial RF license and amateur radio license
> are completely separate items.
> --
> 73, Cecil, W5DXP
>
>

3835. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 22:27:20 UTC
From: Tom Donaly <dtdonaly@sbcglobal.net>
Message-ID: <cXYWf.64750$dW3.16997@newssvr21.news.prodigy.com>
Source record: 62096

Cecil Moore wrote:
> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
>
>>Sorry Cec, but I havn't the foggiest idea what you are talking about.
>
>
> Let me ask it a little differently. We all know what a plot of the standing
> wave current magnitude looks like up and down an open-circuit transmission
> line.
>
> But what does a plot of the associated standing wave current *phase* look
> like up and down that same open-circuited transmission line?
> --
> 73, Cecil, W5DXP
>
>

By now you should be able to calculate that, Cecil.
73,
Tom Donaly, KA6RUH

3836. Re: Adjusting a colinear antenna

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 22:56:12 UTC
From: K7ITM <k7itm@msn.com>
Message-ID: <1143759372.007217.65370@g10g2000cwb.googlegroups.com>
Source record: 62097

Measure the velocity factor (at or near the operating frequency)! If you are using solid polyethylene dielectric cable, then the v.f. really should be close to 0.66. For a flat pattern, you want the center-to-center spacing of the elements to be 1/2 wave, considering the net velocity factor. I say net because at the junctions between elements, it's possible that the effective v.f. is slightly higher than in the coax itself. You'd cut the elements long by enough to let you solder them together and end up with that 1/2 wave center to center. (It's easier and equivalent to measure from top of one element to the top of the next element, etc.)

Since the _pattern_ depends mainly on the phasing of the feed system, and the phasing is established mainly by the propagation velocity in the line, and not by the surrounding environment, putting it next to something won't affect the pattern, except that if there are conductors in that display you want to mount it to, they may very well screw up the pattern by allowing current where you don't want it. Especially if there is some piece that's resonant near the operating frequency it would be like putting an unwanted parasitic element in a Yagi: not a good idea for optimum performance.

OK, so the phasing is designed to get you the right pattern. But the phasing is independent of the feedpoint impedance. You need to match to that, and you also need to decouple the antenna from nearby conductors. Any conductors in the display fall into that category, but the feedline from the xcvr also does. A choke balun, and other feedline choking, is very highly recommended.

I used to have a web page with quite a bit of text about the why and the how of coaxial collinears; it wasn't a construction article, but it armed you with enough info that you could go out and make one that would work well on pretty much any frequency you might want. It included things like why the center-center half wave spacing, and why it's slightly better to use foam dielectric cable. If I got enough requests, I'd make a revised version of that available, maybe even with some pictures this time. Every once in a while I get a request to re-print it in a club newsletter, so I know there are some of those floating around out there.

Cheers,
Tom

3837. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 23:00:57 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122oop9ro4oop4d@corp.supernews.com>
Source record: 62098

Tom Donaly wrote:
> Cecil Moore wrote:
>> "Reg Edwards" <g4fgq.regp@ZZZbtinternet.com> wrote:
>>
>>> Sorry Cec, but I havn't the foggiest idea what you are talking about.
>>
>>
>> Let me ask it a little differently. We all know what a plot of the
>> standing
>> wave current magnitude looks like up and down an open-circuit
>> transmission
>> line.
>>
>> But what does a plot of the associated standing wave current *phase* look
>> like up and down that same open-circuited transmission line?
>> --
>> 73, Cecil, W5DXP
>>
>>
>
> By now you should be able to calculate that, Cecil.
> 73,
> Tom Donaly, KA6RUH

Indeed. And I even gave the answer some time ago -- the phase of the total current (which Cecil seems to like calling the "standing wave" current) is the same all along the line. That's true only for the case of a line that's completely short or open circuited. In any other case, the phase of total voltage and current vary along the line. This can be easily calculated by adding the values of the forward and reverse traveling waves at each point to get the total at each point. Or, if you're lazy, just plug the numbers into the equations you'll find in _Reference Data for Radio Engineers_ or your favorite reference. Or if you're lazier yet you can model a transmission line with EZNEC or the modeling program of your choice and let it tell you what the phase of the current is at each point along the line. Any of the three methods will give the same result if done correctly.

As I mentioned before, a plucked guitar string is a good physical analogy. Each point along the string moves in the same direction at the same time, showing that the motions at all points along the string are in phase.

That's very basic transmission line theory. If Cecil really doesn't know the answer to the question he asked, it's no wonder he has such

conceptual problems with inductors and transmission lines.

Roy Lewallen, W7EL

3838. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 23:09:52 UTC
From: w8ji@akorn.net
Message-ID: <1143760191.959017.55120@j33g2000cwa.googlegroups.com>
Source record: 62099

Richard Harrison wrote:
> Tom, W8JI wrote:
> "Many people vizualize current in a small loading inductor as starting
> at one end and traveling through the conductor turn-by-turn.
>
> That`s how the experts say the coul in a TWT works, and it is no
> different from other coils.

That's not correct at all Richard. The coil in a TWT tube behaves considerably different than a small inductor operted at a low frequency.

Nearly everyone on this thread seems to understand mutal coupling is very high in a conventional loading inductor. This is why the inductor comes close to following a square of the turns change in inductance. A TWT has a loose coil operated in an entitrely different mode, behaving much more like a axial mode helice than an inductor.

It can easily be proven inductors don't behave the same way when they have wide turns spacing and long form factor and low values of distributed capacitive reactance to the outhside world...when compared to an inductor who's displacement current is very low compared to through current.

Coils or inductors can range from having very low phase difference between each terminal (almost immeasureable) to very high values (a helical antenna or tesla coil at resonance).

The only real argument against this seems to be from Cecil, and as I understood it he thinks standing waves are what causes current to be different at each end and somehow sets the phase difference between ends of the inductor.

I can have a fixed style of antenna on a fixed frequency, change only the inductor design, and go from something that almost perfectly behaves like a lumped component to something that has noticable current taper across the component.

Most people had this stuff right from about post one.

I rarely see a thread go nowhere like this one has. It reminds me of the Fractal antenna threads years ago, or that silly conjugate match stuff that went on for years and years.

800 posts later the same major group of people seem to agree, the same one or two people seem to think something magical occurs in an antenna making a regular lumped inductor behave like a self-resonant helice

with standing waves and all.

It's sure a time waster.

73 Tom

3839. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 23:19:57 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <xIZWf.54128$F_3.53238@newssvr29.news.prodigy.net>
Source record: 62100

Roy Lewallen wrote:
> Indeed. And I even gave the answer some time ago -- the phase of the
> total current (which Cecil seems to like calling the "standing wave"
> current) is the same all along the line.

But Roy, you measured the phase of the standing wave current to try to convince us there was no phase shift through a loading coil. You cannot have it both ways. You cannot use the phase of the standing wave current to measure a phase shift through a loading coil and then tell us the phase of the standing wave current is the same all along the line. So which story are you going to chose?

I suspect that when you made those measurements, you didn't realize that standing wave antennas have standing wave currents and that the currents reported by EZNEC for standing wave antennas are standing wave currents with unchanging phase.

If the phase of the standing wave current cannot be used to measure the delay through a wire, what made you think it could be used to measure the delay through a loading coil?
--
73, Cecil http://www.qsl.net/w5dxp

3840. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 23:21:56 UTC
From: Steve Nosko <suteuve.nosukowicuz@moutouroula.com>
Message-ID: <e0hp6k$mk2$2@engnntp2.cig.mot.com>
Source record: 62102

<w8ji@akorn.net> wrote in message
news:1143512188.556841.246670@g10g2000cwb.googlegroups.com...
>
> Steve Nosko wrote:
> > Another consideration is the fact that these are not full half wave
> > *radiators*, but shortened approx to 66%, or 0.33 lambda (when using
this
> > coax). I
>
> Then that's a big problem.
>
> Unless the outside of the cable has the same Vf as the inside, the
> sections won't have the correct phasing.

If I sounded like I was saying it was a "good" antenna I'll clarify.

As I haven't actually measured any, I may be talking out of you-know-where,
but will anyway...

To pick at a point.
I believe the phasing comes out correct. That is, you should be able to
get 180 degrees change in the coax sections. However, because the resulting
outside radiating element is shorter than a half wave (and they are touching
end-to-end), the element spacing is closer that you get with even full half
waves stacked end-to-end and therefore the lobe compression will be less.

Also, as the phase departs from 180, due to measurement errors, you get
further degradation and then the coax loss means unequal power in the
elements, so things go down hill fast. I would suspect that simply putting
a 1/4 antenna outside the box would give same-or-better performance --- and
save the possiblilty of cutting up your fingers with the Exacto.

In spite of the bad science, with RF being RF, it *could* work out that
just having some lesser power extricating itself from the upper quarter wave
element may provide the poor bloke with improved reception. What do they
have inside the computers or cards anyway? --- it most likely isn't a clean,
in the open, well defined antenna, but some compromise design. Good enough
is always good enough even if good enough *is* 20 dB down.
Another source of false science is the location/orientation of this
antenna and the one it is talking to. This construction (assuming he mounts
it upright the way we might think) is assuming that the WiFi antenns is
horizontally in line with his and the polarization where he is, is vertical.
You have an RF sea to swim in.

73, Steve, K9DCI

>
> Phelps Dodge did that two ways.
>
> First, when they used solid dielectric coax, they filled the antenna
> with a very thick wax that gave the correct Vf on the outside of the
> shield.
>
> Second, when they used air insulated coax inside, they suspended the
> coax in air with only an occasional piece of foam for spacing.
>
> There is more to this antenna than just throwing some .66vF sections in
> series! Every coaxial collinear I have built and measured from articles
> in Ham mags has had virtually no useful gain at zero degrees angle over
> a dipole.
>
> 73 Tom
>

3841. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-30 23:31:38 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <uTZWf.54131$F_3.5878@newssvr29.news.prodigy.net>
Source record: 62101

w8ji@akorn.net wrote:
> That's not correct at all Richard. The coil in a TWT tube behaves
> considerably different than a small inductor operted at a low
> frequency.

A 75m bugcatcher coil is not a small inductor. You guys have
backed so far out of the basic real world argument that we can't
even see your coils anymore without a microscope. Of course,
microscopic coils have delays that can be ignored. 75m bugcatcher
coils are not microscopic. They are HUGE!

How you can argue that the magnitude of the current is the same
at both ends of the coil when 12 out of 13 of the measurements
showed they were different is magical thinking, divorced from
reality.

> The only real argument against this seems to be from Cecil, and as I
> understood it he thinks standing waves are what causes current to be
> different at each end and somehow sets the phase difference between
> ends of the inductor.

If you don't understand that fact of physics, you don't understand
the distributed network model at all. In a standing wave antenna,
there exist forward current and reflected current. Any model that
doesn't take that fact into account is doomed to failure.

> 800 posts later the same major group of people seem to agree, the same
> one or two people seem to think something magical occurs in an antenna
> making a regular lumped inductor behave like a self-resonant helice
> with standing waves and all.

The magic is that current travels through coils faster than the speed
of light. That's what your lumped-circuit argument presupposes. It
also completely ignores reflected waves.

Doesn't it seem logical to use a model that includes reflected waves
when one installs a loading coil in a standing wave antenna?
--
73, Cecil http://www.qsl.net/w5dxp

3842. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 00:15:32 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <4rso22tg68ijn458bqd464oferqn48qai9@4ax.com>
Source record: 62103

>you measured
>You cannot have
>You cannot use
>you going
>you made
>you didn't
>you think
What are dreams made of?

3843. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 01:52:24 UTC
From: Buck <not@this.time>
Message-ID: <qv1p221itfd9mmks6b14agdb15oae9lvfm@4ax.com>
Source record: 62104

On 30 Mar 2006 09:45:45 -0800, "DrJoe" <phdjwg@earthlink.net> wrote:

>Hello all,

Hello,

I am sure by now you have figured out that this is a group of amateur
radio operators, however, I have looked into the same information with
the FCC a few years ago. For me it was very discouraging.
>
>Questions for the group:
>
>
>1. What are the potential financial rewards for owning and operating a
>short wave radio transmitter/tower?

Potentially, you will probably do better with an AM broadcast station
than SW BC station. That is my uneducated guess....

>
>
>2. How does an owner go about establishing a revenue stream from
>potential purchasers of air time.
>
I know that a few SW BC stations make money from commercial sales,
however, the majority are non-profit organizations or government run
stations without a means of making income.

>
>3. Who would the primary customer base be?
>
>
You have to determine your market. If you are broadcasting to Mexico,
you will have to find someone wanting to market to them. A few
stations are broadcasting to US markets part time for commercial
revenue and also to foreign countries. SWBC requires the majority of
your content to be directed at the foreign listeners.

>Comments or suggestions?
>
>
The cost of setting up and getting approval of a SWBC station will
very likely exceed $1 million. I believe minimum power is 50 KW, which
requires electricity at premium pricing. Transmitter specifications
are strict and, if I was correctly informed, since your station is
international, it will require you have on board when it is

transmitting, a General RadioTelephone licensed engineer.

>Thank you,
>

You are welcome.
>
>DrJoe (newbie)

I once dreamed of owning my own SWBC station. Every time I
investigate the requirements, I find my dream is more like a
nightmare.

Wishing you the best,

73
Buck

--
73 for now
Buck
N4PGW

3844. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 02:30:13 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <Vu0Xf.44950$bn3.44318@bgtnsc04-news.ops.worldnet.att.net>
Source record: 62105

Cecil,

I guess I am a bit puzzled.

The bugcatcher example I sent you showed a phase shift of about 7 degrees at 4 MHz. The current at the top of the coil drops off to about 85% of the base current. I believe the delay computes to something around 5 ns. That does not seem like a HUGE delay for a coil that contains nearly 40 feet of wire.

I presume you can now duplicate and verify these results, since we have not heard any contrary information. That coil is real close in design to a genuine Texas Bugcatcher #680 from Henry Allen.

Absolutely no one around RRAA clings to a rigid lumped component model, except your straw man. The distinction is that most people treat this non-ideality as a perturbation. You seem to want to elevate it to the status of realignment of the planets.

It has been explained over and over why real coils are not ideal. I am sure you understand. I am not at all sure why you persist in carrying on this rather pointless argument.

73,
Gene
W4SZ

Cecil Moore wrote:
>
>
> A 75m bugcatcher coil is not a small inductor. You guys have
> backed so far out of the basic real world argument that we can't
> even see your coils anymore without a microscope. Of course,
> microscopic coils have delays that can be ignored. 75m bugcatcher
> coils are not microscopic. They are HUGE!
>
> How you can argue that the magnitude of the current is the same
> at both ends of the coil when 12 out of 13 of the measurements
> showed they were different is magical thinking, divorced from
> reality.

3845. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 03:21:34 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <2f1Xf.60874$H71.21875@newssvr13.news.prodigy.com>
Source record: 62106

Gene Fuller wrote:
> The bugcatcher example I sent you showed a phase shift of about 7
> degrees at 4 MHz.

I've been waiting for you to come back with the facts that
contradict W8JI's measurements. Thanks once again.

The coil has about half the inductance of the 100 uH coil
measured by W8JI. He measured ~4 degrees in 100 uH. EZNEC
reports 8 degrees in 60 uH for an 8.5 foot antenna.

My wild ass guess was at least five times more accurate
than W8JI's measurements. Thanks for pointing that out.
--
73, Cecil http://www.qsl.net/w5dxp

3846. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 03:30:05 UTC
From: Bob Miller <NOSPAM@neosoft.com>
Message-ID: <a08p225kp01eedulcmk6103ae4oattuli7@4ax.com>
Source record: 62107

On 30 Mar 2006 09:45:45 -0800, "DrJoe" <phdjwg@earthlink.net> wrote:

>Hello all,
>
>I am new to the group but have a specific reason for joining. The
>primary reason I joined, like many of you I am sure, is to get
>information about short wave radio. My situation: I have the
>appropriate parcel of land (110) acres that is free from any legal
>impediments to building a short wave radio tower. The land is located
>in West Central Alabama, in rural Fayette County.I also have the
>necessary funding to build a short wave radio tower and transmitter.
>The site has been evaluated as a perfect location that is virtually
>free from any potential liability and from the perspective of reaching
>millions of people in Mexico and Central America.
>
>
>Questions for the group:
>
>
>1. What are the potential financial rewards for owning and operating a
>short wave radio transmitter/tower?
>
>
>2. How does an owner go about establishing a revenue stream from
>potential purchasers of air time.

No one is going to purchase advertising time on your station unless
you have programming that appeals to the people that the ads are aimed
at.

Programming that appeals to people in the 25 to 54 age group pulls in
the folks who have the most money to spend, and it is to them that you
might want to aim your programming.

And what would that programming be?

And do you have the money to finance it?

As an amateur, I'm not offering any commercial advice here, just
posing things you may not have thought of.

A transmitter and shortwave tower is only, to paraphrase Ed Murrow,
just a box with wires and stuff in it...

Bob
k5qwg

>
>
>3. Who would the primary customer base be?
>
>
>Comments or suggestions?
>
>
>Thank you,
>
>
>DrJoe (newbie)

3847. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 04:01:45 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <JQ1Xf.657674$qk4.256197@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62108

Cecil,

I did not say anything about W8JI's measurements. He had a completely different setup, and I had nothing to do with it.

You have a remarkable Teflon coating. I completely called your bluff on the bugcatcher coil, and you simply ignore the result and slide away to some other Don Quixote adventure. I am not really surprised, of course.

73,
Gene
W4SZ

Cecil Moore wrote:
> Gene Fuller wrote:
>
>> The bugcatcher example I sent you showed a phase shift of about 7
>> degrees at 4 MHz.
>
>
> I've been waiting for you to come back with the facts that
> contradict W8JI's measurements. Thanks once again.
>
> The coil has about half the inductance of the 100 uH coil
> measured by W8JI. He measured ~4 degrees in 100 uH. EZNEC
> reports 8 degrees in 60 uH for an 8.5 foot antenna.
>
> My wild ass guess was at least five times more accurate
> than W8JI's measurements. Thanks for pointing that out.

3848. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 04:17:02 UTC
From: Ray - KU2S <nomail@mymail.com>
Message-ID: <d8bp221ke662fbrefof2be4s3sc9n8lhh4@4ax.com>
Source record: 62109

On 30 Mar 2006 09:45:45 -0800, "DrJoe" <phdjwg@earthlink.net> wrote:

>Hello all,
>
>I am new to the group but have a specific reason for joining. The
>primary reason I joined, like many of you I am sure, is to get
>information about short wave radio. My situation: I have the
>appropriate parcel of land (110) acres that is free from any legal
>impediments to building a short wave radio tower. The land is located
>in West Central Alabama, in rural Fayette County.I also have the
>necessary funding to build a short wave radio tower and transmitter.
>The site has been evaluated as a perfect location that is virtually
>free from any potential liability and from the perspective of reaching
>millions of people in Mexico and Central America.
>
>
>Questions for the group:
>
>
>1. What are the potential financial rewards for owning and operating a
>short wave radio transmitter/tower?
>
>
>2. How does an owner go about establishing a revenue stream from
>potential purchasers of air time.
>
>
>3. Who would the primary customer base be?
>
>
>Comments or suggestions?
>
>
>Thank you,
>
>
>DrJoe (newbie)

Dr. Joe,

Your questions are quite off-topic for a newsgroup dedicated
to Amateur Radio antennas. Perhaps you should seek the expertise of
some commercial radio professionals in your area...
Raymond A. Sirois - KU2S
SysOp: The Lost Chord BBS

telnet://thelostchord.dns2go.com:6023
http://thelostchord.dns2go.com:6080

3849. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 04:22:20 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122pbjsor3khbe4@corp.supernews.com>
Source record: 62110

Richard Harrison wrote:
> Tom, W8JI wrote:
> "Many people vizualize current in a small loading inductor as starting
> at one end and traveling through the conductor turn-by-turn.
>
> That`s how the experts say the coul in a TWT works, and it is no
> different from other coils.
> . . .

I maintain that there's no such group as "other coils", but that coils act quite differently depending on their physical sizes and the amount of coupling between turns.

I believe that current traveling down a straight wire goes at nearly the speed of light. I also believe that if you take that straight wire and wind it into a helix with very widely spaced turns, it also travels down the wire at nearly the speed of light. But if you wind a helix that's short in terms of wavelength and with a reasonable length/diameter ratio, the field from the current in each turn couples to all other turns, which makes the propagation axially from one end to the other close to the speed of light. That is, for the same length of wire, an inductor with closely coupled turns has a much lower propagation delay than one with the turns spread out in a loose helix.

Do I infer from your comments that you believe that the current continues to flow along the wire at about the speed of light, so that if the wire length stays the same, the propagation delay along the widely spaced helix is the same as for the short one with close spaced turns? That is, that both these cases fall into what you categorize as "other coils", which act the same as the helix in a TWT?

Roy Lewallen, W7EL

3850. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 05:32:10 UTC
From: w8ji@akorn.net
Message-ID: <1143783130.334281.179750@g10g2000cwb.googlegroups.com>
Source record: 62111

Gene Fuller wrote:
> Cecil,
>
> I guess I am a bit puzzled.
>
> The bugcatcher example I sent you showed a phase shift of about 7
> degrees at 4 MHz. The current at the top of the coil drops off to about
> 85% of the base current. I believe the delay computes to something
> around 5 ns. That does not seem like a HUGE delay for a coil that
> contains nearly 40 feet of wire.
>
> I presume you can now duplicate and verify these results, since we have
> not heard any contrary information. That coil is real close in design to
> a genuine Texas Bugcatcher #680 from Henry Allen.
>
> Absolutely no one around RRAA clings to a rigid lumped component model,
> except your straw man. The distinction is that most people treat this
> non-ideality as a perturbation. You seem to want to elevate it to the
> status of realignment of the planets.
>
> It has been explained over and over why real coils are not ideal. I am
> sure you understand. I am not at all sure why you persist in carrying on
> this rather pointless argument.

Actually Gene if you look at:

http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm

your EZNEC model's current agrees with similar coils in antennas I
measured.

I expect Cecil will ignore what you sent him, or announce it supports
his conclusions by editing the data.

73 Tom

3851. Re: tower/transmitter ownership

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 10:31:27 UTC
From: Brian Kelly <kelly@dvol.com>
Message-ID: <1143801087.611414.321280@v46g2000cwv.googlegroups.com>
Source record: 62112

DrJoe wrote:
> Hello all,
>
> I am new to the group but have a specific reason for joining. The
> primary reason I joined, like many of you I am sure, is to get
> information about short wave radio. My situation: I have the
> appropriate parcel of land (110) acres that is free from any legal
> impediments to building a short wave radio tower. The land is located
> in West Central Alabama, in rural Fayette County.I also have the
> necessary funding to build a short wave radio tower and transmitter.
> The site has been evaluated as a perfect location that is virtually
> free from any potential liability and from the perspective of reaching
> millions of people in Mexico and Central America.
>
>
> Questions for the group:
>
>
> 1. What are the potential financial rewards for owning and operating a
> short wave radio transmitter/tower?
>
>
> 2. How does an owner go about establishing a revenue stream from
> potential purchasers of air time.
>
>
> 3. Who would the primary customer base be?
>
>
> Comments or suggestions?

. . . troll . . .

> Thank you,

You're welcome.
>
>
> DrJoe (newbie)

Uh-huh . .

w3rv

3852. Re: Illegal Immigration, the Non-Issue of the Week?????????????

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 12:15:45 UTC
From: Dave <W1MCE@comcast.net>
Message-ID: <u8WdnX_JpZrygLDZRVn-jQ@comcast.com>
Source record: 62113

Wasn't there a movie, maybe 10+ years ago, with Richard Pryor running as
'None of the Above' ??

Seems like the thought is applicable here!

Expert Humor wrote:

> The way our politicians rushed to talk about
> illegal immigration this week, maybe they thought it
> came with a free lunch. They won't do anything about it,
> but it will get them some money. The Expert provides
> the details at:
>
> http://www.ExpertHumor.com/
>
>
>
>
>
>
>
> *** Free account sponsored by SecureIX.com ***
> *** Encrypt your Internet usage with a free VPN account from http://www.SecureIX.com ***

3853. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 12:28:40 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <Yf9Xf.43652$_S7.41033@newssvr14.news.prodigy.com>
Source record: 62114

Gene Fuller wrote:
> I completely called your bluff on
> the bugcatcher coil, and you simply ignore the result and slide away to
> some other Don Quixote adventure.

The EZNEC simulation is just one more data point in a large set
of data points that are already widely scattered. EZNEC does not
have magic or God-like properties to override reality especially
when your design results in pages and pages of segmentation
guideline violations. The jury is still out on the question.

You guys have a habit of declaring victory when you score your
first point after trailing 10-0. When only one coil out of a
dozen tests showed the current at each end of the toroidal
coil to be the same, W8JI declared that was proof that all
coils have the same current at each end.

If you will check my postings, you will see that I said
the delay through a coil is what it is and we usually don't
know what it is. But we do know it is NOT instantaneous and
we know it is unlikely to be the 3 nS measured by W8JI.

I was surprised to see EZNEC report the delay as 20% less than
my lower estimate of 10 degrees. But that 8 degrees is 100%
higher than W8JI's measured values.

And there's your pesky posting about standing wave currents.

>> The only "phase" remaining is the cos (kz) term, which is really an amplitude
>> description, not a phase.

If we assume the 1.013 amp at the bottom of the coil occurs when
the forward and reflected currents are in phase, then the 0.7628
amps at the top of the coil would have the currents 82 degrees
out of phase, i.e. a 41 degree phase shift through the coil.
That is, of course, only a rough estimate, but enough different
from the 8 degrees to suspect something is wrong with my suggested
traveling wave antenna.
--
73, Cecil http://www.qsl.net/w5dxp

3854. Re: which brand?what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 12:36:59 UTC
From: ml <m@di.net>
Message-ID: <m-E73669.07363031032006@news.verizon.net>
Source record: 62115

In article <AGoWf.49173$2O6.15724@newssvr12.news.prodigy.com>,
Cecil Moore <mycall@hotmail.com> wrote:

> Roy Lewallen wrote:
> > So any core you put over the coax doesn't
> > see or interact with the common mode current or its fields at all, and
> > you can completely ignore it when analyzing balun action.
>
> Roy probably meant "differential" above instead of "common".
> Cores on coax definitely "interact with the common mode current
> or its fields" and that is their purpose.

ok so after reading all this, wich i enjoyed, confused me a bit.

lets say i operate 10-160m and 6m (all band antenna)
, at max 500wout. (typically 200w)

who makes a good commercial choke balun"" w/so239's at the ends??

make/model/where to buy, ??

i've been using a w2du, lots have told me it's not the 'best' money
isn't the issue i'd just like to get a 'good one' ie efficient

thanks

any tips appreciated

3855. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 12:47:49 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <Vx9Xf.43653$_S7.34108@newssvr14.news.prodigy.com>
Source record: 62116

w8ji@akorn.net wrote:
> Actually Gene if you look at:
> http://www.w8ji.com/mobile_antenna_current_measurements_at_w8ji.htm
>
> your EZNEC model's current agrees with similar coils in antennas I
> measured.

I still don't understand how you can continue to assert that there are equal currents at each end of a loading coil when half of your own measurements show a current at the top of the coil that is 73-79% lower than the current at the bottom of the coil.

And I have shown that those currents depend upon where the coil is placed in the standing wave system:

http://www.qsl.net/w5dxp/current.htm
http://www.qsl.net/w5dxp/1WLDIP.GIF

> I expect Cecil will ignore what you sent him, or announce it supports
> his conclusions by editing the data.

Please see my posting answering Gene. The 8 degree delay value is 20% less than my lowest estimate. The 8 degree delay value for the ~70 uH coil is 100% higher than your measured value of 3 nS for a 100 uH coil. The EZNEC value is also suspicious in the face of pages and pages of segmentation violations errors reported by EZNEC.

> Gene Fuller wrote:
>> The only "phase" remaining is the cos (kz) term, which is really
>> an amplitude description, not a phase.

The phase information in a standing wave is in its amplitude and can be used to estimate the difference in phase angles between the forward and reflected currents.

If the current at the top of the coil is 75% of the current at the bottom of the coil, it means that the forward and reflected current phasors are approximately 82 degrees out of phase with each other, i.e. there is roughly a 41 degree phase shift through the coil. That comes from your own measurements.

The latest EZNEC results are just one more data point on a plot already containing many scattered data points.
--
73, Cecil http://www.qsl.net/w5dxp

3856. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 12:59:30 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <SI9Xf.43655$_S7.12244@newssvr14.news.prodigy.com>
Source record: 62117

Roy Lewallen wrote:
> I maintain that there's no such group as "other coils", but that coils
> act quite differently depending on their physical sizes and the amount
> of coupling between turns.

What's wrong with grouping coils that act quite differently
into a set called "other coils"?

> But if you wind a helix that's
> short in terms of wavelength and with a reasonable length/diameter
> ratio, the field from the current in each turn couples to all other
> turns, which makes the propagation axially from one end to the other
> close to the speed of light.

This is easily proven not to be true by self-resonance testing.
My 75m bugcatcher is self-resonant on my GMC pickup at about
6.6 MHz. If the signal were "propagating axially from one end to
the other close to the speed of light", the self-resonant frequency
would be close to 1 GHz.
--
73, Cecil http://www.qsl.net/w5dxp

3857. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 14:18:55 UTC
From: KG0WX <kg0wx@yahoo.com>
Message-ID: <1143814734.966277.282030@e56g2000cwe.googlegroups.com>
Source record: 62118

Well, folks I finally decided to test my new antennas. First, I decided to shorten the antennas to 4 elements instead of 8 so I could mount the antennas directly on the back of my thinkpad's screen. The 8 el jobs would have made life harder, requiring connectors, mounting plates, etc. All that for just 3db more gain. Nah...

I went on a "war walk" this morning, scanning my neighborhood for any WiFi access points. I've got a neighbor down the street who has one and with my old antennas (2 inverted V's), I could pickup his network from about 5 houses away. With the new antennas, I picked up his system from twice the distance. Nice! As I understand it, a 4 el coaxial colinear
antenna will have about 6dbd gain so getting double the range seems right. I was curious if my setup was directional so I got to the fringe coverage range and turned around 360 degrees but saw no drop in the signals. It seems like microwaves go right through my screen (and me!).

Now to construct a pair of 8 el antennas for my WRT54G router.....

Disclaimer: I am NOT trying to "hack" free internet access from the neighborhood WiFi 802.11b/g systems - that's not what wardriving is about......

Ken KG0WX

3858. The Seven Warning Signs of Bogus Science

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 16:02:05 UTC
From: Irv Finkleman <finkirv@shaw.ca>
Message-ID: <442D5289.E6EFBD9A@shaw.ca>
Source record: 62119

I thought this article might be of interest in that we often see claims about certain types of antennas which fall into the category.

From
http://chronicle.com/free/v49/i21/21b02001.htm

POINT OF VIEW
The Seven Warning Signs of Bogus Science
By ROBERT L. PARK

The National Aeronautics and Space Administration is investing close to a million dollars in an obscure Russian scientist's antigravity machine, although it has failed every test and would violate the most fundamental laws of nature. The Patent and Trademark Office recently issued Patent 6,362,718 for a physically impossible motionless electromagnetic generator, which is supposed to snatch free energy from a vacuum. And major power companies have sunk tens of millions of dollars into a scheme to produce energy by putting hydrogen atoms into a state below their ground state, a feat equivalent to mounting an expedition to explore the region south of the South Pole.

There is, alas, no scientific claim so preposterous that a scientist cannot be found to vouch for it. And many such claims end up in a court of law after they have cost some gullible person or corporation a lot of money. How are juries to evaluate them?

Before 1993, court cases that hinged on the validity of scientific claims were usually decided simply by which expert witness the jury found more credible. Expert testimony often consisted of tortured theoretical speculation with little or no supporting evidence. Jurors were bamboozled by technical gibberish they could not hope to follow, delivered by experts whose credentials they could not evaluate.

In 1993, however, with the Supreme Court's landmark decision in Daubert v. Merrell Dow Pharmaceuticals, Inc. the situation began to change. The case involved Bendectin, the only morning-sickness medication ever approved by the Food and Drug Administration. It had been used by millions of women, and more than 30 published studies had found no evidence that it caused birth defects. Yet eight so-called experts were willing to testify, in exchange for a fee from the Daubert family, that Bendectin might indeed cause birth defects.

In ruling that such testimony was not credible because of lack of supporting evidence, the court instructed federal judges to serve as "gatekeepers," screening juries from testimony based on scientific

nonsense. Recognizing that judges are not scientists, the court invited judges to experiment with ways to fulfill their gatekeeper responsibility.

Justice Stephen G. Breyer encouraged trial judges to appoint independent experts to help them. He noted that courts can turn to scientific organizations, like the National Academy of Sciences and the American Association for the Advancement of Science, to identify neutral experts who could preview questionable scientific testimony and advise a judge on whether a jury should be exposed to it. Judges are still concerned about meeting their responsibilities under the Daubert decision, and a group of them asked me how to recognize questionable scientific claims. What are the warning signs?

I have identified seven indicators that a scientific claim lies well outside the bounds of rational scientific discourse. Of course, they are only warning signs -- even a claim with several of the signs could be legitimate.

1. The discoverer pitches the claim directly to the media. The integrity of science rests on the willingness of scientists to expose new ideas and findings to the scrutiny of other scientists. Thus, scientists expect their colleagues to reveal new findings to them initially. An attempt to bypass peer review by taking a new result directly to the media, and thence to the public, suggests that the work is unlikely to stand up to close examination by other scientists.

One notorious example is the claim made in 1989 by two chemists from the University of Utah, B. Stanley Pons and Martin Fleischmann, that they had discovered cold fusion -- a way to produce nuclear fusion without expensive equipment. Scientists did not learn of the claim until they read reports of a news conference. Moreover, the announcement dealt largely with the economic potential of the discovery and was devoid of the sort of details that might have enabled other scientists to judge the strength of the claim or to repeat the experiment. (Ian Wilmut's announcement that he had successfully cloned a sheep was just as public as Pons and Fleischmann's claim, but in the case of cloning, abundant scientific details allowed scientists to judge the work's validity.)

Some scientific claims avoid even the scrutiny of reporters by appearing in paid commercial advertisements. A health-food company marketed a dietary supplement called Vitamin O in full-page newspaper ads. Vitamin O turned out to be ordinary saltwater.

2. The discoverer says that a powerful establishment is trying to suppress his or her work. The idea is that the establishment will presumably stop at nothing to suppress discoveries that might shift the balance of wealth and power in society. Often, the discoverer describes mainstream science as part of a larger conspiracy that includes industry and government. Claims that the oil companies are frustrating the invention of an automobile that runs on water, for instance, are a

sure sign that the idea of such a car is baloney. In the case of cold fusion, Pons and Fleischmann blamed their cold reception on physicists who were protecting their own research in hot fusion.

3. The scientific effect involved is always at the very limit of detection. Alas, there is never a clear photograph of a flying saucer, or the Loch Ness monster. All scientific measurements must contend with some level of background noise or statistical fluctuation. But if the signal-to-noise ratio cannot be improved, even in principle, the effect is probably not real and the work is not science.

Thousands of published papers in para-psychology, for example, claim to report verified instances of telepathy, psychokinesis, or precognition. But those effects show up only in tortured analyses of statistics. The researchers can find no way to boost the signal, which suggests that it isn't really there.

4. Evidence for a discovery is anecdotal. If modern science has learned anything in the past century, it is to distrust anecdotal evidence. Because anecdotes have a very strong emotional impact, they serve to keep superstitious beliefs alive in an age of science. The most important discovery of modern medicine is not vaccines or antibiotics, it is the randomized double-blind test, by means of which we know what works and what doesn't. Contrary to the saying, "data" is not the plural of "anecdote."

5. The discoverer says a belief is credible because it has endured for centuries. There is a persistent myth that hundreds or even thousands of years ago, long before anyone knew that blood circulates throughout the body, or that germs cause disease, our ancestors possessed miraculous remedies that modern science cannot understand. Much of what is termed "alternative medicine" is part of that myth.

Ancient folk wisdom, rediscovered or repackaged, is unlikely to match the output of modern scientific laboratories.

6. The discoverer has worked in isolation. The image of a lone genius who struggles in secrecy in an attic laboratory and ends up making a revolutionary breakthrough is a staple of Hollywood's science-fiction films, but it is hard to find examples in real life. Scientific breakthroughs nowadays are almost always syntheses of the work of many scientists.

7. The discoverer must propose new laws of nature to explain an observation. A new law of nature, invoked to explain some extraordinary result, must not conflict with what is already known. If we must change existing laws of nature or propose new laws to account for an observation, it is almost certainly wrong.

I began this list of warning signs to help federal judges detect scientific nonsense. But as I finished the list, I realized that in our increasingly technological society, spotting voodoo science is a skill that every citizen should develop.

Robert L. Park is a professor of physics at the University of Maryland at College Park and the director of public information for the American Physical Society. He is the author of Voodoo Science: The Road From Foolishness to Fraud (Oxford University Press, 2002).

http://chronicle.com
Section: The Chronicle Review
Volume 49, Issue 21, Page B20
--

Diagnosed Type II Diabetes March 5 2001
Beating it with diet and exercise!
297/215/210 (to be revised lower)
58"/43"(!)/44" (already lower too!)

Visit my HomePage at http://members.shaw.ca/finkirv/index.html
Visit my Baby Sofia website at http://members.shaw.ca/finkirv4/index.htm
Visit my OLDTIMERS website at http://members.shaw.ca/finkirv5/index.htm
---
Irv Finkleman,
Grampa/Ex-Navy/Old Fart/Ham Radio VE6BP
Calgary, Alberta, Canada

3859. Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 16:45:46 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <VsCdnfdyXLhwwbDZRVnygA@bt.com>
Source record: 62120

To choke balun Gurus.

There is, in fact, a transformer in a choke balun which you have ALL forgotten about, or never knew it exists.

It has nothing to do with 1-to-1 or any other turns ratio.

It is a transmission line transformer comprised of the short length of line (coax or just a pair of wires) which passes through the balun. It is the length of line which is wound on the balun to form the choke. (All lengths of line behave as transformers.)

This line has an impedance Zo. If it is coax line then its impedance is usually 50 ohms. If it is a pair of wires laid alongside each other then its impedance depends on wire diameter, wire spacing and permittivity of the insulation. If it is similar to twin speaker cable then it has an impedance of about 130 ohms. The presence of ferrite has hardly any effect.

When the balun is located between the main transmission line and the tuner then on the antenna side of it there can be seen, say, 300, 450 or 600 ohms.

This is transformed to another impedance on the tuner side of the balun.

The transformation depends on line Zo and its length in wavelengths which depends on frequency. On the 160m band very little happens. The frequency is too low and the line is too short. It is only a few turns of wire around the ferrite core.

On the 10 meter band, at the higher frequencies, the winding length on the balun can approach 1/4-wavelength and the 450 ohm main-line impedance can be transformed to something considerably different.

But the tuner couldn't care what it is. Its purpose is to transform whatever it is presented with to 50 ohms. The presence of the balun merely causes a change in tuner L and C settings. Insofar as the tuner and operator are concerned the transformer in the balun does not exist.

When designing a choke balun the number of turns on the choke and the length of wire involved are best restricted to something less than 1/4-wavelength at the highest frequency of use. 1/8-wavelength is suitable.

Restricting turns has the effect of reducing choke inductance and the choking effect at the lowest frequency of use.

But a 2-inch diameter ferrite ring with a modest permeability of 200 or more, wound with 18 awg stranded twin speaker cable, will allow operation from 1.8 to 30 MHz.

With a balun constructed of a number of ferrite slugs over a coaxial cable there is no transformer action at any frequency because the short length of 50-ohm 'transforming' line is terminated at both ends with a 50-ohm line.

Reg, G4FGQ.

3860. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 16:48:59 UTC
From: Cecil Moore <mycall@arrl.net>
Message-ID: <%3dXf.54311$F_3.54180@newssvr29.news.prodigy.net>
Source record: 62121

"Gene Fuller" <W4SZzzzzzz@att.net> wrote:
> I did not say anything about W8JI's measurements. He had a completely
> different setup, and I had nothing to do with it.

Didn't say you did and it's good that the two were unrelated -
just wanted to point out the contradictions between your
EZNEC results and W8JI's 3 nS measurements.

I have uncovered a slight conceptual error in my traveling wave
antenna simulation. I took care to eliminate reflections between
the top of the coil and the load on the traveling wave wire. But
I didn't do anything to eliminate reflections from the bottom of
the coil. So the current phase at the load at the bottom of the
coil is not from a traveling wave. It is instead from a standing
wave or a combination of the two waves.

The bottom section is one foot long. Knowing the frequency,
e.g. 4 MHz, allows us to calculate the delay in that one foot
of wire, i.e. 0.0041 WL = 1.5 degrees. So the current
phase at the bottom of the coil is -1.5 degrees on 4 MHz.
With the current phase at the top of the coil being 10.72
degrees, that gives a phase shift through the coil of
9.22 degrees which is equivalent to 6.4 nS, more than
double W8JI's measured value still posted to his web page.
--
73, Cecil, W5DXP

3861. A multi ferrite choke BalUn

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 17:12:02 UTC
From: John Popelish <jpopelish@rica.net>
Message-ID: <naadnYqP9Ijm_LDZRVn-tg@adelphia.com>
Source record: 62122

It seems to me that, if one wanted to make a choke BalUn that covered a wide frequency range, it could be made with several grades of ferrite in the stack of cores on the coax, a la W2DU, with the highest frequency material at the antenna end.

Digikey sells 3 grades of ferrite made by Steward, in long form beads that are intended for common mode choke applications. The low frequency material is similar to Fair-Rite type 75 (u about 5000). The medium frequency material is similar to type 43 (u about 800). And the high frequency material is similar to type 61, only higher loss (u about 125).

I have long beads in all of these materials, and some more on back order. If someone would volunteer to measure the common mode impedance of each a set of, say, 3 of each type strung on a foot of wire, to find the useful frequency range, I would be happy to lend them the set of cores.

3862. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 17:23:58 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <p7adnRA9KcRD-LDZRVnysQ@bt.com>
Source record: 62123

Cec, do you think that knowledge of reflected waves and phase angles
and propagation delays will enable an antenna designer to construct
something that will win contests every time? ;o)

I'd rather place my confidence in screwing an extra length on the top
end of the loaded whip and damn the extra propagation delay.

I nearly didn't post this.

Reg

3863. Re: The Seven Warning Signs of Bogus Science

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 18:07:02 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <m0qq2218pp71h78jtbftkbbp386f6502es@4ax.com>
Source record: 62124

On Fri, 31 Mar 2006 16:02:05 GMT, Irv Finkleman <finkirv@shaw.ca>
wrote:

>1. The discoverer pitches the claim directly to the media.

Or a vanity publisher.

>2. The discoverer says that a powerful establishment is trying to
>suppress his or her work.

Almost always prefaced here in mumbling about Gurus.

>3. The scientific effect involved is always at the very limit of
>detection.

Think ï¿½59% error that "proves" a theory.

>4. Evidence for a discovery is anecdotal.

Just looking at the headers here reveal how one correspondent (who
shall go unnamed) posts twice in response, and then responds to his
responses.

>5. The discoverer says a belief is credible because it has endured for
>centuries.

Appeals to Galileo, Occam, Plushbottom, and Kelvinator seem to be
popular for whoring.

>6. The discoverer has worked in isolation.

With his reports of vast support by email from a legion of admirers.

>7. The discoverer must propose new laws of nature to explain an
>observation.

Can anyone spell the fundamental property of Standing Wave
steady-state RMS phase current flowing in a Kirchhoff distributed
network?

C is for the endless carping;
E is for the S12 voltage Ponzi;
C is for the stray capacitance shuffled Enron style;
I is for the current like a Republican budget that never balances;
L is for the inductance in this three card Monte.

Put them all together, and you've got the seven warning signs
described.

73's
Richard Clark, KB7QHC

3864. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 18:30:10 UTC
From: Gene Fuller <W4SZzzzzzz@att.net>
Message-ID: <SyeXf.661054$qk4.463578@bgtnsc05-news.ops.worldnet.att.net>
Source record: 62125

Cecil,

The numbers you quote below have no relationship to the numbers from the model I sent you. This is the third time you have "accidentally" screwed with the model.

73,
Gene
W4SZ

Cecil Moore wrote:

>
> The bottom section is one foot long. Knowing the frequency,
> e.g. 4 MHz, allows us to calculate the delay in that one foot
> of wire, i.e. 0.0041 WL = 1.5 degrees. So the current
> phase at the bottom of the coil is -1.5 degrees on 4 MHz.
> With the current phase at the top of the coil being 10.72
> degrees, that gives a phase shift through the coil of
> 9.22 degrees which is equivalent to 6.4 nS, more than
> double W8JI's measured value still posted to his web page.
> --
> 73, Cecil, W5DXP
>
>

3865. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 18:49:21 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <RQeXf.10640$tN3.3586@newssvr27.news.prodigy.net>
Source record: 61926

Gene Fuller wrote:
> The numbers you quote below have no relationship to the numbers from the
> model I sent you. This is the third time you have "accidentally" screwed
> with the model.

It was no accident. Those numbers are from your model modified
to an 8.5 ft. tall antenna. *Our original agreement was an 8 ft.
tall antenna.* Your antenna was almost 50% longer, and that was a
violation of the agreed upon boundary conditions. If you made
it 50 feet tall the delay through the coil would be even smaller.
I'll send you the modified files.
--
73, Cecil http://www.qsl.net/w5dxp

3866. Re: Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 18:58:06 UTC
From: John - KD5YI <groups5munge@verizon.net>
Message-ID: <2ZeXf.1088$dU3.257@trnddc01>
Source record: 61927

Hi, Reg -

I do not understand...

Reg Edwards wrote:
> To choke balun Gurus.
>
> There is, in fact, a transformer in a choke balun which you have ALL
> forgotten about, or never knew it exists.
>
> It has nothing to do with 1-to-1 or any other turns ratio.
>
> It is a transmission line transformer comprised of the short length of
> line (coax or just a pair of wires) which passes through the balun. It
> is the length of line which is wound on the balun to form the choke.
> (All lengths of line behave as transformers.)
>
> This line has an impedance Zo. If it is coax line then its impedance
> is usually 50 ohms. If it is a pair of wires laid alongside each
> other then its impedance depends on wire diameter, wire spacing and
> permittivity of the insulation. If it is similar to twin speaker cable
> then it has an impedance of about 130 ohms. The presence of ferrite
> has hardly any effect.

So, then, I would have the same transformer (or balun or whatever) if I used
a wooden or plastic torus to wind the thing?

> When the balun is located between the main transmission line and the
> tuner then on the antenna side of it there can be seen, say, 300, 450
> or 600 ohms.
>
> This is transformed to another impedance on the tuner side of the
> balun.
>
> The transformation depends on line Zo and its length in wavelengths
> which depends on frequency. On the 160m band very little happens. The
> frequency is too low and the line is too short. It is only a few turns
> of wire around the ferrite core.

Why do you use the term ferrite if ferrite is not required? Why not use
torus or toroid ring or donut or something similar?

> On the 10 meter band, at the higher frequencies, the winding length on
> the balun can approach 1/4-wavelength and the 450 ohm main-line
> impedance can be transformed to something considerably different.
>

> But the tuner couldn't care what it is. Its purpose is to transform
> whatever it is presented with to 50 ohms. The presence of the balun
> merely causes a change in tuner L and C settings. Insofar as the tuner
> and operator are concerned the transformer in the balun does not
> exist.
>
> When designing a choke balun the number of turns on the choke and the
> length of wire involved are best restricted to something less than
> 1/4-wavelength at the highest frequency of use. 1/8-wavelength is
> suitable.
>
> Restricting turns has the effect of reducing choke inductance and the
> choking effect at the lowest frequency of use.
>
> But a 2-inch diameter ferrite ring with a modest permeability of 200
> or more, wound with 18 awg stranded twin speaker cable, will allow
> operation from 1.8 to 30 MHz.

But, you said "The presence of ferrite has hardly any effect" above. I thought the relative permeability without ferrite was 1. (I am assuming you meant relative permeability since you had no units associated with the number 200.)

> With a balun constructed of a number of ferrite slugs over a coaxial
> cable there is no transformer action at any frequency because the
> short length of 50-ohm 'transforming' line is terminated at both ends
> with a 50-ohm line.
> ----
> Reg, G4FGQ.
>

Again, you said the ferrite has hardly any effect. Why not put plastic rings over the coax?

This is so confusing...

Thanks,
John

3867. Re: Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 19:06:55 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <TYOdnR7bkb1j4LDZRVnysQ@bt.com>
Source record: 61928

A choke is supposed to reduce longitudinal currents on the line to
insignificant amounts.

But very often it doesn't. If you have a choke in the line how much
difference does it make if you remove it? If it makes no difference
you might just as well leave it out.

Insertion of a choke does not affect the manner in which the
longitudinal current is induced to flow in the line in the first
place.

The choke may indeed reduce the magnitude of the current at the
location of the choke. But the current always has standing waves and
the choke may merely shift the maximum current of the wave to another
place along the line. The longitudinal current still exists.

Indeed, if a minimum current should exist at the place where the choke
is inserted then the choke may serve no useful purpose and it can be
removed. It could be re-inserted at a place 1/4-wavelength away at a
current maximum where it MIGHT do some good.

All this requires knowledge of where the standing wave resides. But
one never has such knowledge unless one knows the cause. And if one
knows the cause it can be remedied.

The only way to prevent longitudinal currents on feedlines is to
remedy the cause, or to place chokes at every quarterwave interval all
along the line. Shifting the standing wave maximum, however, might be
sufficient to prevent the trouble it may be causing elsewhere in the
system.

The moral is - don't allow large longitudinal currents to be induced
on the feedlines in the first place. It's poor design.

A little bit of the inevitable longitudinal current on the feedline is
harmless.

If it works - don't fix it!

Reg, G4FGQ

3868. Re: Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 19:15:20 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <ntKdnTjWsb9x4rDZRVny0A@bt.com>
Source record: 61929

> So, then, I would have the same transformer (or balun or whatever)
if I used
> a wooden or plastic torus to wind the thing?
>
==========
John, yes you would. But you would not have the choke.

Reg.

3869. Re: Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 20:15:53 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <y9udneKb69SkE7DZRVny1A@bt.com>
Source record: 61930

John, I'm afraid you havn't the foggiest idea about how a choke balun works. You are being confused by the Gurus' bafflegab.

A choke balun is a device which permits a balanced circuit to be connected to an unbalanced circuit without interference to the power flow. In this respect it is NOT a transformer. No ratios are involved.

There are two conductors or wires in a transmission line.

In a choke balun the two wires are TOGETHER wound round a ferrite core AS ONE WIRE. It is this pair of wires together, as one wire, which forms the choke using the ferrite core.

The choke has inductance and inductive reactance. The reactance chokes the current which would flow equally in both wires, in the same direction in both wires.

Entirely independently, the pair of wires can carry the normal transmission line currents which flow in oposite directions to each other. If normal currents in the two wires flow in opposite directions to each other then there is no flux induced in the ferrite and the ferrite may just as well not be there.

So the choking action has no effect on normal transmission line operation along the two wires.

The choke only acts on that current which flows along the line when both wires in parallel are considered to be ONE wire.

For longitudinal currents the two wires can be considered as being connected together at both ends. Connected in parallel. It's really a single wire choke.

It's all very simple really. There are two INDEPENDENT currents flowing.

Reg, G4FGQ

3870. Re: which brand?what a 1:1 choke balum used for

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 20:16:04 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122r3g5glbdvod6@corp.supernews.com>
Source record: 61931

ml wrote:
> In article <AGoWf.49173$2O6.15724@newssvr12.news.prodigy.com>,
> Cecil Moore <mycall@hotmail.com> wrote:
>
>> Roy Lewallen wrote:
>>> So any core you put over the coax doesn't
>>> see or interact with the common mode current or its fields at all, and
>>> you can completely ignore it when analyzing balun action.
>> Roy probably meant "differential" above instead of "common".
>> Cores on coax definitely "interact with the common mode current
>> or its fields" and that is their purpose.

Indeed I did. I apologize for the error.

Roy Lewallen, W7EL

3871. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 20:17:56 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122r3jlmqjh1g15@corp.supernews.com>
Source record: 61932

KG0WX wrote:
> . . .
> Disclaimer: I am NOT trying to "hack" free internet access from the
> neighborhood WiFi 802.11b/g systems - that's not what wardriving is
> about......

What is it about?

Roy Lewallen, W7EL

3872. Re: Amother look at a choke balun.

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 20:37:26 UTC
From: Richard Clark <kb7qhc@comcast.net>
Message-ID: <6n4r22pbvs9nitjvmm1ob7qeon9uiosvmg@4ax.com>
Source record: 61933

On Fri, 31 Mar 2006 21:15:53 +0100, "Reg Edwards"
<g4fgq.regp@ZZZbtinternet.com> wrote:
>You are being confused by the Gurus' bafflegab.

Elevating your status today Reggie?

3873. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 22:05:38 UTC
From: richardharrison@webtv.net
Message-ID: <11783-442DA7B2-470@storefull-3254.bay.webtv.net>
Source record: 61934

Roy, W7EL wrote:
"I maintain there`s no such group as "other coils", but that coils act quite differently depending on their physical sizes and the amount of coupling between turns."

I wrote:
"That`s how the experts say the coil in a TWT works, and is no different from other coils."

All coils aren`t inside TWTs, but all coils do create inductance.

Bill Orr wrote this concerning the coil in a Traveling Wave Tube:
"Figure 25 is a simplified sketch of a basic helix-type TWT tube. Spaced closely around the beam is a circuit, in this case a helix of tightly wound wire, capable of propagating a slow wave. The r-f energy travels along the wire at the velocity of light, because of the helical path, the energy progresses along the length of the tube at a considerable slower veloity than is determined primarily by the pitch of the helix."

Terman wrote this concerning the coil in a TWT:
"The beam is shot through a long, loosely wound helix, and is collected by an electrode at anode potential as shown."

Lenkurt wrote:
"The RF signal travels as a surface wave around the turns of the helix, toward the collector, at about the velocity of light. The forward or axial velocity is slower, of course, because of the pitch and diameter of the helix."

Orr`s example was a helix of tightly wound wire.

Terman`s example was a long, loosely wound helix, and Lenkurt did not specify how tight or loosely the coil was wound. In all cases the coil retarded the signal well below the velocity of light along the axis that the electron beam traveled so that the beam could keep up with the signal along the path. The beam needs to be speeded as well as slowed for velocity modulation.

Point is that group velocity does not exceed the velocity of light even in W8JI`s coil no matter how he makes it. There is no way to coerce actual energy to exceed the velocity of light. It would turn into a pumpkin or something.

Also, electric current follows the course of maximum potential difference and that`s along the conductor supplying the electrons. The wave impels electrons to move in the conductor.

Kraus wrote:
"The helical antenna, which is discussed in this chapter, may be regarded as the connecting link between the linear antenna and the loop antenna, discussed in preceeding chapters. The helical antenna is the general form of antenna of which the linear and the loop are special cases. Thus, a helix of fixed diameter collapses to a loop as spacing approaches zero. On the other hand, a helix of fixed spacing between turns straightens out into a linear conductor as the diameter approaches zero.

This thread has been about a coil loaded whip. This is a standing wave antenna. When the signal gets to the antenna tip it has no where else to go but return over the path which brought it. The coil has an incident wave impinging from the transmitter and an out-of-phase signal reflected from its tip. These two waves have the same origin so they are locked in step to make standing waves in both voltage and current. These determine the ratios of voltage to current at each point along the signal route. In this respect the coil behaves as a conductor in the antenna. It has more opposition to the signals traversing it than a straight wire but the volts and amps at each of its ends can obviously be very different. Thus, current in one end of the coil can be very different from the current at the other end of the same coil.

Best Regards, Richard Harrison, KB5WZI

3874. Re: What kind of antenna is this?

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 22:23:08 UTC
From: Ken Bessler <kg0wx@NOSPAMyahoo.com>
Message-ID: <jZhXf.4109$fS6.3323@dukeread11>
Source record: 61935

It's about radio, internet, technology....

Kinda similar to ham radio.... I mean - why use 20 meters when the
telephone is right there in the shack?

Get it? :-)

Ken

"Roy Lewallen" <w7el@eznec.com> wrote in message
news:122r3jlmqjh1g15@corp.supernews.com...
> KG0WX wrote:
> > . . .
> > Disclaimer: I am NOT trying to "hack" free internet access from the
> > neighborhood WiFi 802.11b/g systems - that's not what wardriving is
> > about......
>
> What is it about?
>
> Roy Lewallen, W7EL

3875. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 22:26:30 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122rb4p4vmdui0d@corp.supernews.com>
Source record: 61936

From all that, I gather that your answer is "yes", that you do believe
that the current in a small inductor with close turn spacing (i.e., one
where the fields from the turns couple well) flows around and around
along the wire at near the speed of light, resulting in a delay from end
to end approximately equal to the wire length divided by the speed of light.

Or did I misinterpret what you said, and you don't believe this?

Roy Lewallen, W7EL

Richard Harrison wrote:
> Roy, W7EL wrote:
> "I maintain there`s no such group as "other coils", but that coils act
> quite differently depending on their physical sizes and the amount of
> coupling between turns."
>
> I wrote:
> "That`s how the experts say the coil in a TWT works, and is no different
> from other coils."
>
> All coils aren`t inside TWTs, but all coils do create inductance.
> . . .

3876. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 22:49:51 UTC
From: richardharrison@webtv.net
Message-ID: <11783-442DB20F-474@storefull-3254.bay.webtv.net>
Source record: 61937

Rot, W7EL wrote:
"From all that, I gather your answer is Yes."

I believe the wave is guided by the wire in its path and takes no shortcut along the axis of a coil.

Best regards, Richard Harrison, KB5WZI

3877. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 23:19:15 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <TNiXf.65033$dW3.15983@newssvr21.news.prodigy.com>
Source record: 61938

Roy Lewallen wrote:

> From all that, I gather that your answer is "yes", that you do believe
> that the current in a small inductor ...

There's those buzz words "small inductor" again. We are talking about
75m bugcatcher coils, not "small inductors". Small inductors have a
high self-resonant frequency. We are talking about large inductors
operated relatively near their self-resonant frequencies.
--
73, Cecil http://www.qsl.net/w5dxp

3878. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 23:28:41 UTC
From: Roy Lewallen <w7el@eznec.com>
Message-ID: <122rep9k2fqc49d@corp.supernews.com>
Source record: 61939

It'll be easy enough to show that's false. If I set up a simple measurement with a piece of Air-Dux in series with a resistor, a couple of calibrated current probes, and a dual-channel scope, will you believe the results? Or would you rather have someone else make the measurement or do it yourself?

Roy Lewallen, W7EL

Richard Harrison wrote:
> Rot, W7EL wrote:
> "From all that, I gather your answer is Yes."
>
> I believe the wave is guided by the wire in its path and takes no
> shortcut along the axis of a coil.
>
> Best regards, Richard Harrison, KB5WZI
>

3879. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 23:54:59 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <njjXf.65042$dW3.63834@newssvr21.news.prodigy.com>
Source record: 61940

Richard Harrison wrote:

> Rot, W7EL wrote:
>> "From all that, I gather your answer is Yes."
>
> I believe the wave is guided by the wire in its path and takes no
> shortcut along the axis of a coil.

If 100% of the flux from each and every coil physically linked
100% of each and every other coil, the current would indeed skip
from one end of the coil to the other without interference. That
is the basic presupposition of the lumped-circuit model.

Quoting Dr. Corum:
"Lumped element circuit theory assumes that there are no wave
interference phenomena present, ...", i.e. no superposition
of forward and reflected waves, i.e. no standing waves.

Continuing the quote:
"This is manifested by two phenomena: 1. The current distribution
function is spatially uniform across each element. 2. The spatial
phase delay between circuit extremities is zero."

One has to imagine that W8JI's 2" dia x 12" length 100 uH coil
links 100% of the flux in coil number 1 with coil number 100
a foot away and vice versa. That's quite an imagination but W8JI
did measure a 3 nS delay, virtually instantaneous, so it must
be true.
--
73, Cecil http://www.qsl.net/w5dxp

3880. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 23:58:57 UTC
From: Cecil Moore <mycall@hotmail.com>
Message-ID: <5njXf.65049$dW3.20839@newssvr21.news.prodigy.com>
Source record: 61941

Roy Lewallen wrote:

> It'll be easy enough to show that's false. If I set up a simple
> measurement with a piece of Air-Dux in series with a resistor, a couple
> of calibrated current probes, and a dual-channel scope, will you believe
> the results? Or would you rather have someone else make the measurement
> or do it yourself?

You will, no doubt, chose a piece of Air-Dux so
small that all the flux is linked to every coil.

Instead of a small Air-Dux coil, use a 75m bugcatcher
coil mounted over a ground plane and see what you get.
--
73, Cecil http://www.qsl.net/w5dxp

3881. Re: Current through coils

Newsgroup: rec.radio.amateur.antenna
Date: 2006-03-31 23:59:10 UTC
From: Reg Edwards <g4fgq.regp@ZZZbtinternet.com>
Message-ID: <3eCdnVjOm9VSX7DZRVny1w@bt.com>
Source record: 61942

To nobody in particular.

If the propagation time along a coil is equal to the time taken for the current to travel along the length of wire in the coil at the velocity of light, then, at a given frequency, if a half-wavelength of wire is wound into a coil it should become self-resonant at that frequency.

But it isn't. The coil resonates at a different frequency which depends on the length and diameter of the coil as well as on the length of wire.

Just make a coil, measure its resonant frequency, then measure the length of wire it contains. There will be no direct relationship between resonant frequency and length of wire.

The same experiment can be carried out using pencil and paper.

The resonant frequency will be directly related to wire length only when the coil is stretched out straight. And only then.

Reg.